Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves
PUBLISHED WEEKLY BY TELEPHONY PUBLISHING CORP
608 S. Dearborn St., CHICAGO

H. D. FARGO, President and Treasurer
S. R. EDWARDS, Editor and Secretary

H. D. FARGO, Jr., Vice-President and Advertising Manager
D. C. SORENSEN, Western Advertising Manager

Entered as second-class matter September 4, 1908, at the postoffice at Chicago, Ill., under act of March 3, 1879.

Volume 96
Number 23

CHICAGO, SATURDAY, JUNE 8, 1929

Subscription — 10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

Telephone Statistics From Federal Census Bureau

Although the figures extend only to December 31, 1927, the statistics presented by the federal census bureau regarding telephones in the United States contain much information of interest. The telephone industry did not have to wait for the Washington announcement to know that it had more than 18½ million stations in service at the close of 1927, but the government label on the report lends the figures a color of authority that will impress the world generally.

A prominent feature of the census report is the disclosure that the increase in telephones was 29.1 per cent for the five-year period since 1922, or 5.8 per cent per year, while the growth of population in the United States was 7.5 per cent for the five years, or 1½ per cent per year. This means that from 1922 to 1927, inclusive, the rate of annual increase in the number of telephones was nearly four times the rate of population increase.

As an indicator of the ever-growing demands for telephone service this comparison is impressive.

* * * *

According to the government reports the total number of telephone calls made in 1927 was 31,614,172,621, which represents an increase of 28.3 per cent over 1922, when the calls aggregated 24,647,560,860. These figures are almost too large to comprehend, but can be brought down more within the average human range when we do a little arithmetic and find that in 1927 there were about a hundred million telephone calls for every working day in the year.

Wire mileage showed an even greater increase over the five-year period, growing from 37,265,958 in 1922 to 63,836,182 in 1927, a gain of 71.3 per cent. The number of employes of telephone companies increased from 312,015 in 1922 to 375,272 in 1927, the rate of increase being greater for male than for female employes—26.2 per cent for the former, as against 17.3 per cent for the latter.

* * * *

While every state in the Union showed a growth of telephones in service, the largest rate of increase was in Florida.

According to the census bureau, in 1922 Florida had 79,657 telephones, and at the close of 1927 this number had increased to 162,293, a gain of 103.7 per cent. Florida's real estate development in the years 1922 to 1925 accounts for this large telephone expansion.

California ranked second in point of telephone increase, growing from 763,638 in 1922 to 1,205,466 in 1927, a percentage increase of 57.9 per cent.

Louisiana was not far behind, having a gain of 57.5 per cent, and New Jersey was fourth with 56.3 per cent. Growth in other states ranged from 45.8 per cent in New York to 6 per cent in Iowa.

The comparatively small increase in these states is mainly due to the farm depression, and points to the fact that with improving conditions in the rural districts there will be larger opportunities for telephone development in these sections. The figures of the census bureau show that the bulk of the telephone growth during the last five years was in the large cities.

* * * *

The census bureau's announcement says that the canvass covered all public telephone systems or lines operated within the United States. No data were collected from certain private lines—for example, those used exclusively by railroads for dispatching and operating trains, and those connecting branches or departments of industrial plants, such as mines, factories, timber camps, etc., and used exclusively for private business—nor from lines operated by the federal, state and municipal governments.".

The census report says the "shift from non-Bell to Bell telephones" was the greatest in Missouri, where the Bell stations showed a gain of 130.8 per cent for the five-year period. This was due to the Bell system taking over the Kinloch property at St. Louis and the Independent plant at Kansas City during that period. Likewise, the Bell gains in Kentucky and Michigan were mainly due to the transfers of Independent properties at Louisville and Grand Rapids in the early years of the 1922-1927 period.

* * * *

The tables on the next page summarize the statistics for the years 1922 to 1927, both generally and by states.

The census bureau's estimate of investment in plant and equipment by the telephone industry for December 31, 1927, is $3,548,874,716, which represents a gain of 60.9 per cent over 1922.

This is a gain of over 12 per cent a year for the period and is good proof that it requires a steady flow of money to keep up with the telephone requirements of the American people. Operating revenues—including the assessments of mutual companies—showed a gain of 53.8 per cent for the five-year period of the census.

	1927.	1922.	Per cent of increase.
Number of systems or lines	60,148	57,253	5.1
Miles of single wire	63,836,182	37,265,958	71.3
Number of telephones	18,522,767	14,347,395	29.1
Number of central offices	20,225	19,260	5.0
Number of calls originating with systems reporting	31,614,172,621	24,647,560,860	28.3
Number of employes	375,272	312,015	20.3
Male	131,802	104,433	26.2
Female	243,470	207,582	17.3
Salaries and wages	$ 486,597,070	$ 352,925,570	37.9
Operating revenues*	1,023,573,567	665,568,279	53.8
Investment in plant and equipment	3,548,874,716	2,205,183,150	60.9

*Including assessments of mutual companies.

Table 1.—Summary, All Systems or Lines, 1927 and 1922.

Division and State.	Total 1927.	Total 1922.	Bell System 1927.	Bell System 1922.	All Other Systems or Lines. 1927.	All Other Systems or Lines. 1922.	Per Cent of Increase or Decrease (—). Total.	Bell System.	All Other Systems or Lines.
New England	1,548,931	1,223,497	1,453,469	1,135,359	95,462	88,138	26.6	28.0	— 0.7
Maine	131,367	113,725	88,437	74,891	42,930	38,834	15.5	18.1	10.5
New Hampshire	83,066	68,874	61,430	50,932	21,636	17,942	20.6	20.6	20.6
Vermont	60,793	54,530	37,168	31,162	23,625	23,368	11.5	19.3	1.1
Massachusetts	867,888	687,700	864,951	683,386	2,937	4,314	26.2	26.6	—31.9
Rhode Island	114,944	92,766	112,868	91,271	2,076	1,495	23.9	23.7	38.9
Connecticut	290,873	205,902	288,615	203,717	2,258	2,185	41.3	41.7	3.3
Middle Atlantic	4,588,211	3,249,710	3,980,241	2,908,858	607,970	545,852	41.2	47.2	11.4
New York	2,595,537	1,780,563	2,329,131	1,561,017	266,406	219,546	45.8	49.2	21.3
New Jersey	599,336	383,496	582,710	368,439	16,626	15,057	56.3	58.2	10.4
Pennsylvania	1,393,338	1,085,651	1,068,400	774,402	324,938	311,249	28.3	38.0	4.4
East North Central	4,589,751	3,693,101	3,177,753	2,255,352	1,411,998	1,437,749	24.3	40.9	— 1.8
Ohio	1,122,036	962,837	748,874	600,173	373,162	362,664	16.5	24.8	2.9
Indiana	552,249	508,726	227,218	193,114	325,031	315,612	8.6	17.7	3.0
Illinois	1,685,690	1,283,449	1,293,340	898,235	392,350	385,214	31.3	44.0	1.9
Michigan	711,315	508,140	587,228	338,718	124,087	169,422	40.0	73.4	—26.8
Wisconsin	518,461	429,949	321,093	225,112	197,368	204,837	20.6	42.6	— 3.6
West North Central	2,594,081	2,315,996	1,158,441	771,453	1,435,640	1,544,543	12.0	50.2	— 7.1
Minnesota	487,611	424,777	195,402	170,576	292,209	254,201	14.8	14.6	15.0
Iowa	565,533	533,347	227,555	177,151	337,978	356,196	6.0	28.5	— 5.1
Missouri	657,946	550,980	414,683	179,664	243,263	371,316	19.4	130.8	—34.5
North Dakota	86,198	77,586	34,820	22,637	51,378	54,949	11.1	53.8	— 6.5
South Dakota	107,641	101,555	21,865	20,706	85,776	80,849	6.0	5.6	6.1
Nebraska	295,274	273,500	107,028	102,527	188,246	170,973	8.0	4.4	10.1
Kansas	393,878	354,251	157,088	98,192	236,790	256,059	11.2	60.0	— 7.5
South Atlantic	1,262,222	937,324	951,422	651,271	310,800	286,053	34.7	46.1	8.7
Delaware	28,901	23,534	28,396	22,972	505	562	22.8	23.6	—10.1
Maryland	197,135	153,790	193,520	150,268	3,615	3,522	28.2	28.8	2.6
District of Columbia	144,985	102,231	144,985	102,231	.....	.....	41.8	41.8	...
Virginia	183,698	155,490	122,912	97,991	60,786	57,499	18.1	25.4	5.7
West Virginia	146,677	116,081	103,885	77,147	42,792	38,934	26.4	34.7	9.9
North Carolina	160,507	116,129	81,208	35,874	79,299	80,255	38.2	126.4	— 1.2
South Carolina	64,616	54,078	44,922	32,726	19,694	21,352	19.5	37.3	— 7.8
Georgia	173,410	136,334	136,723	97,512	36,687	38,822	27.2	40.2	— 5.5
Florida	162,293	79,657	94,871	34,550	67,422	45,107	103.7	174.6	49.5
East South Central	644,270	521,120	443,609	273,804	200,661	241,316	23.6	58.5	—16.8
Kentucky	222,735	201,545	139,653	76,490	83,082	125,055	10.5	82.6	—33.6
Tennessee	220,559	171,413	148,413	100,823	72,146	70,590	28.7	47.2	2.2
Alabama	121,115	84,401	92,094	59,410	29,021	24,991	43.5	55.0	16.1
Mississippi	79,861	63,761	63,449	43,081	16,412	20,680	25.3	47.3	20.6
West South Central	1,149,357	872,157	787,547	481,904	361,810	390,253	31.8	63.4	— 7.3
Arkansas	118,178	99,490	73,535	55,843	44,643	43,647	18.8	31.7	2.3
Louisiana	137,610	87,354	128,995	78,788	8,615	8,566	57.5	63.7	0.6
Oklahoma	278,912	222,889	184,698	134,161	94,214	88,728	25.1	37.7	6.2
Texas	614,657	462,424	400,319	213,112	214,338	249,312	32.9	87.8	—14.0
Mountain	456,198	385,730	391,510	320,661	64,688	65,069	18.3	22.1	— 0.6
Montana	50,238	55,115	48,057	43,992	11,181	11,123	7.5	9.2	0.5
Idaho	54,822	48,745	36,476	31,863	18,346	16,882	12.5	14.5	8.7
Wyoming	28,049	24,949	2,902	19,583	5,147	5,366	12.4	16.9	— 4.1
Colorado	183,250	150,652	168,442	135,635	14,808	15,017	21.6	24.2	— 1.4
New Mexico	21,580	18,342	17,835	13,441	3,745	4,901	17.7	32.7	—23.6
Arizona	33,194	24,353	30,638	21,877	2,556	2,476	36.3	40.0	3.2
Utah	63,106	53,261	58,824	47,831	4,282	5,430	18.5	23.0	—21.1
Nevada	12,959	10,313	8,336	6,439	4,623	3,874	25.7	29.5	19.3
Pacific	1,689,746	1,148,760	1,382,064	915,151	307,682	233,609	47.1	51.0	31.7
Washington	299,109	238,275	227,756	174,007	71,353	64,268	25.5	30.9	11.0
Oregon	185,171	146,847	135,085	98,148	50,086	48,699	26.1	37.6	2.8
California	1,205,466	763,638	1,019,223	642,996	186,243	120,642	57.9	58.5	54.4
Total United States	18,522,931	14,347,395	13,726,056	9,514,813	4,796,711	4,832,582	29.1	44.3	— 0.7

Table 2.—Number of Telephones for the Bell System and for All Other Systems or Lines, by Geographical Divisions and States. December 31, 1927 and 1922.

Installing the Semi-Public Pay Station

Definition of Semi-Public Pay Station and Reasons for Installing It—Traffic Expenses Reduced When This Service Is Installed and Free Service Eliminated—First Prize, Commercial Division, TELEPHONY'S Article Contest

By B. C. Schweitzer,

Commercial Superintendent, Home Telephone & Telegraph Co., Fort Wayne, Ind.

Flat-rate telephone service has always been, and always will be, accompanied by certain abuses, even though the telephone company has in effect rigid rules covering the use of the service. The public and subscriber, however, can not be blamed for their violation, especially of the almost universal rule limiting the service to the subscriber and his family or his employes upon the subscriber's business, since in too few cases do telephone companies provide the proper supplement to their flat-rate service in the way of public and semi-public pay stations.

Before going further it might be well for us to define both public and semi-public pay station service:

A public pay station is a telephone equipped with a coin-collecting device located in a public place (railroad stations, hotels, etc.) for both local and long distance service for the public.

A semi-public pay station is a telephone equipped with a coin-collecting device for both local and long distance service located in a public place (retail stores, such as drug stores, cigar stores, etc.) for use of both the public and the subscriber, and so arranged that the subscriber may receive incoming calls.

Most telephone companies are acquainted with the former service, but many companies have not as yet taken advantage of the semi-public pay station service.

Now why install semi-public pay stations? It is hard to answer this question without going off on a tangent trying to enumerate all of the logical reasons why a telephone company should install this service, but we shall list just a few of the more important reasons.

1. Service abuses and infractions of company rules are lessened.

2. Service furnished to paying telephone users is improved by the traffic reduction effected.

3. Traffic expense is reduced.

4. Both local and toll revenue is increased.

"Should You Find," Says Mr. Schweitzer, "An Abuse of Your Rule Against Free Service, It Is Very Easy Either to Install a Semi-Public Pay Station or Move the Subscriber's Telephone to an Inaccessible Point, If You Feel That Semi-Public Service Would Be Unprofitable."

5. Non-subscribers are forced to become subscribers.

Most violations of company rules or abuses of telephone service by subscribers and the public are not intentional infractions; on the other hand they are the result of the telephone company failing to make available to its subscribers and the public the service which will make service abuses unnecessary.

Picture yourself, as the proprietor of any small retail store like a drug store, cigar store or the like, being forced to refuse your customers and the public the use of telephone service over your flat-rate telephone without being provided with some other supplemental service with which to serve them. You can readily see what your own reaction would be in such an instance. Your first instinct would be to condemn all public utilities, and especially the telephone company, as a monopoly.

Now picture yourself again being approached by the telephone company, giving you an alternative of either moving your flat-rate service to an inaccessible location and thus protecting it from public use, or having your service changed to a semi-public pay station which would provide you with incoming service and outgoing service, both local and long distance, for both yourself and the public through the use of a coin box with the advantage of being able to cut down your telephone expense by receiving a commission on collections over and above a reasonable guarantee. Your attitude toward such an approach and your feeling toward the telephone company would be entirely different.

That service is improved for the paying telephone-user where semi-public pay station service is installed is not hard to explain. At this point we might give an example of what happened in a city where the local Chamber of Commerce filed a complaint with the state public utility regulatory body, stating that their telephone service was of a poor quality and unsatisfactory. This state regulatory body immediately dispatched one of its service investigators to that city. In making a canvass of the main business district, the investigator found that in practically every retail store telephone service

---

The problem of "borrowed telephone service," particularly in semi-public places, is one to which a great deal of thought has been given. In some cases proprietors of cigar stores, drug stores, etc., have endeavored to discourage the use of their telephone by the public and in other cases they encourage its use. One solution of this problem is provided through use of the semi-public pay station.

In this article, Mr. Schweitzer tells why, where and how to install this type of pay station and what results may be expected.

Mr. Schweitzer has been in the telephone business since February, 1920, following graduation from the University of Illinois. From that time to August, 1923, he was with J. G. Wray & Co. in appraisal and commercial engineering work. Then he became commercial agent of the Home Telephone & Telegraph Co., Fort Wayne, Ind., and in 1925 was made commercial superintendent. The Home company operates over 35,000 stations from nine exchanges, having increased from 13,600 stations and two exchanges since 1919.

In connection with his work with the Fort Wayne company, Mr. Schweitzer introduced the stub plan of revenue accounting in 1926 and in 1927 converted the Fort Wayne directory to the vertical style of classified section. His discussion of semi-public pay stations will interest all those engaged in the commercial side of telephone work.

was being given away promiscuously to the public.

What was the result? After careful study it was determined that more than one-sixth of the calls passing through the switchboards of this particular telephone company's central offices were free service calls. This fact made the solution of the problem and the settlement of the complaint more or less easy.

What did the public regulatory body do next? It ordered the telephone company to eliminate the free service causing the traffic overload by first making the flat-rate telephone service inaccessible to the public, and then supplementing or replacing that service with semi-public pay stations.

The foregoing statement that fully one-sixth of the calls passing through the switchboards of the telephone company's exchange, were free service calls provides a convincing argument that traffic expenses can be materially reduced when the semi-public pay station service is installed and free service eliminated. These traffic expenses do not apply to manual telephone plants only, but likewise to automatic telephone systems, for in either case the traffic load determines the traffic expense. For instance, in an automatic or dial system central office one expense item alone, that of central office power, is materially increased with the increase of telephone traffic.

In the advertising business, we are sure you will agree, the results are comparable with the coverage of the territory. Likewise in sales work, we find that total sales are more or less in proportion to the number of salesmen employed. It, therefore, has been proved that where both local and long distance telephone service are made available to the public through the installation of semi-public pay stations, the usage of these two services is increased with a corresponding increase in revenue therefrom.

We all know that human beings in general are prone to follow the line of least resistance and, therefore, a great many times non-subscribers are in this class, because they have free service available at some nearby store. These same non-subscribers, however, are forced to make a decision when pay station service is installed, and they immediately compare the cost and inconvenience of the pay station service with the installation of a telephone in their own home.

The next question concerning this service that is to be answered is: Where shall it be installed? And by this we mean in what size city or town is it profitable to install semi-public pay stations?

This is probably one of the hardest questions to answer because local conditions and telephone habits of various communities differ greatly. For instance, a small town may be closely connected to a large city, in which case it is not only advisable, but almost imperative that this service be installed because the public is educated to use it. However, in isolated towns it might be inadvisable to install the service where the population was twice and even more than twice the size of the suburb of a large city.

Some of the factors which the manager of a smaller exchange should consider seriously before deciding on the installation of semi-public pay station service are the extent of the abuse of the service and the amount of free traffic passing through the switchboards. One index which might be used to aid in making a decision is the daily per station calling rate which may be compared with other communities of similar size. For the most part, however, this problem is a local managerial problem for which it is hard to give a definite answer.

Now how shall one go about the installation of semi-public pay station service and what precautions should one take? First, it might be well, if you are not already certain of the attitude of your state public utility regulatory body, to find out how far it will go to back you up in the installation of this service, should any complaint reach its hands from your subscribers.

In only one state, to our knowledge, has the state commission ruled unfavorably toward the prevention of free telephone service for the non-paying public. Nevertheless it pays to keep your state regulatory body informed as to what your company is doing, especially where there is some chance of complaints being sent in. Of course, it goes without saying that you will see to it that you have on file with this state regulatory body the proper rules and regulations to protect you from free service abuses.

The next matter to be attended to is that of filing a rate for this service. In some states this rate may be filed as a supplemental rate not requiring a public hearing, while in others such a procedure is not possible. The former arrangement is by far the most satisfactory, since too much advance publicity in a change of this sort is detrimental to the successful outcome of the plan.

You may be interested in the general makeup of a supplemental rate. It is usually advisable to have a slight differential between the flat-rate one-party business and the semi-public rate. By that we mean that the semi-public rate should be one-sixth or thereabouts lower than the flat rate. It should always be kept in mind that it is more convenient to have your rate filed on a daily guarantee basis, as for instance 15, 20 or 25 cents per day as a guarantee with a payment of a commission of, let us say, 25 per cent on all local calls over and above this guarantee.

With this preliminary work accomplished, your next thought will be that of how to prepare your prospect list, and this is relatively easy. If you have a classified business directory or buyer's guide in connection with your telephone directory—and we assume that most companies that intend to install this semi-public service will be large enough to have such—you can easily pick out the most logical groups of retail business where public telephone service is most in demand.

The following list will, in a way, give an idea of the groups or classes of business which are most logical for this type of service:

Class A: (1) Drug stores; (2) cigar stores; (3) confectioneries; (4) restaurants; (5) recreation halls (pool and billiard halls); (6) soft drink parlors; (7) small hotels; (8) boarding houses; and (9) other retail stores frequented by the public.

Class B. Of course, semi-public pay station service must be in turn supplemented by regular pay station service as a protection to the semi-public users. Hence it is necessary to see that (1) banks; (2) department stores; (3) Y. M. C. A.'s; (4) hotels; and (5) railway stations and the like, are covered by some class of pay stations.

We have assumed that previous to filing your rates, your plant department has taken care of the ordering, delivery and installation of the necessary central office equipment and pay-station instruments as are necessary for the estimated number of lines of this type of service that you are to add.

It might be well, however, to mention the fact that the demand for this type of equipment is so great nowadays that it is well to allow plenty of time within which to get delivery of the equipment, since a delay might be embarrassing if you had taken contracts for the service with an understanding that it would be cut over on a certain date.

The actual sale of semi-public service to your selected list of subscribers is by far the most important part of this campaign. You should by all means select as salesmen, men who are schooled in the telephone business as well as in salesmanship. Before sending them out to interview your prospects, it is profitable to make their approach of the prospect as easy as possible.

We all realize that in salesmanship a good approach is usually half of the sale. Therefore we would suggest, in order to give your salesman easy access to his prospect, that you arrange to get the endorse-

COMING CONVENTIONS.

Independent Telephone Association of Washington, Everett, June 14 and 15.

Telephone Association of Vermont, Hotel Van Ness, Burlington, June 25 and 26.

ment of the semi-public pay station service from the Retail Druggists and the Retail Merchants' associations of your community. This can be done by seeing to it that the presidents and officers of these organizations are thoroughly sold on the idea of this new service. When they are sold on the proposition, it is very easy for them to get their associations to endorse your service by a resolution passed at one of their meetings.

We found in one instance, the druggist's association was so enthusiastic that it was agreed to send out a letter to all of its members over the signature of its president, explaining the advantages of semi-public pay stations, informing its membership of the resolution passed by the association, and urging all members to co-operate by making use of semi-public service.

You will find that such a contact and such an endorsement removes the greatest stumbling block for your salesman and arms him with an approach that is more or less irresistible.

In coaching your salesmen to sell this service, teach them to avoid as far as possible the mention of moving the flat-rate service to a point inaccessible to the public, but rather instruct them to spend all of their time in selling the semi-public service by fitting their arguments to the needs of the particular customer.

This point is an absolute necessity, especially in dealing with some of your prospects who may be prejudiced against any form of pay-station service and who will, therefore, agree to move the telephone to an inaccessible location, always having in mind that it can be made available to their customers and the public.

The salesman furthermore should be versatile so that he may change his arguments to fit the individual prospect, his business and surroundings. For example, in approaching a proprietor of a restaurant, the salesman could quite frequently dwell upon the fact that this new service would prevent some customer or transient from placing a long distance call over the subscriber's telephone and then failing to pay for it, as might happen where only flat rate service is available.

This particular argument that the pay station would protect the subscriber from paying long distance charges for calls made by unknown customers, in many cases gets the signature on the contract.

One objection to the semi-public service, which is invariably raised by the prospect, is "Why don't you force all business subscribers to take pay stations?" This objection is not so difficult to answer, since it can be explained that the free service abuse is confined particularly to stores and retail establishments of a certain kind where the public expects to find telephone service available, and that the offices and stores which are not logical for the semi-public service will have their service observed to determine whether or not they are allowing the public to use it. This latter fact protects the subscriber using the semi-public service.

The salesman, in addition to securing the contracts, should endeavor to help the subscriber find a suitable and convenient location for the pay-station instrument, since it is folly to sell this service and then fail to make it convenient for the subscriber and accessible for the public who use it. In some instances it is profitable to even go to the expense of installing shelves in crowded stores in order to get a good location.

As soon as the contracts start coming in, you can arrange for the installation of the instruments which should be equipped with coin-slot covers, bearing a notice similar to the following copy:

NOTICE

This telephone will operate as a Semi-Public Pay Station after May 25, 1929.

Until that time coin slots are not to be used.

The Progressive Telephone Co.

These coin-slot covers can be made of a fairly heavy gauge sheet metal, bent so as to snap over the coin slots. Upon this coin-slot cover, the printed sticker bearing the notice can be glued. The instrument can thus be used as a flat-rate telephone until you are ready for the cutover.

When all pay-station instruments that have been sold are installed and you have decided on your cutover date, arrange to call each semi-public subscriber and inform him that the pay stations are now being cut into service and ask him to remove the coin-slot cover. After all semi-public lines are cut into service, it is advisable to have a repairman test and inspect each installation to be sure that all instruments are operating properly.

As soon as possible after the cutover it is well to put up for observation the lines of those subscribers whom you feel may possibly be giving away service to the public to the disadvantage of the semi-public users. Should you find that the observation shows an abuse of your rule against free service, it is very easy to either install a semi-public pay station or move the subscriber's telephone to an inaccessible point if you feel that semi-public service would be unprofitable.

Experience shows that after semi-public pay stations have been collected for the first time, it is well to send out with your commission check or bill a form letter to each subscriber, explaining to him your collection methods and the manner of billing for this type of service. This will prevent a great many misunderstandings and a great deal of confusion.

What results can one expect from a good coverage of the logical users of semi-public pay station service?

From our experience with the installation of semi-public pay stations we are convinced that the public at large does not want a "Free Ride," and after the proper education provided by two or three months' use will agree that semi-public pay station service solves the public demand for telephone service to be furnished at accessible retail stores.

We find that some subscribers who were openly opposed to this service are now some of its biggest boosters and we, therefore, should like to recommend that any telephone company of sufficient size which is annoyed by the abuse caused by free service adopt and install semi-public pay stations.

Telephone Line Extended to President Hoover's Fishing Lodge.

Telephone connection with President Hoover's fishing camp on the Rapidan River in Madison County, Va., has just been established by the Chesapeake & Potomac Telephone Co. of Virginia. It was necessary to construct about 15 miles of pole line from Madison to the camp site and to string two copper circuits from Orange, Va. From Orange to Washington circuits were made available on an existing line of the American Telephone & Telegraph Co.

The President's lodge is located at the foot of Double Top Mountain, in a shady grove between Mill Prong and Laurel Fork, which form the Rapidan river. These mountains were well-stocked game preserves in the early days. Downstream a mile or two is White Oak Stand, from which hunters killed bears as they crossed the Rapidan river over a then well-defined trail from Double Top to Fork Mountain.

The lodge is equipped with modern cooking conveniences, is heated and lighted by electricity; and with telephone and radio as means of communication, the President and his guests will be in close touch with world events. Developments in almost any part of the world can be communicated to the President within a few minutes after they are reported to the executive offices in Washington. From this remote fishing lodge he now has telephone access to every part of the country.

Telephone Cable System of Austria to Be Almost Doubled.

The telephone cable system in Austria, which at present extends to a length of about 690 miles, is to be increased by 500 miles during the financial year 1929-30.

The work includes a cable between Vienna and Gratz, with an extension to Wildon and Marburg. A second cable is also to be laid between Vienna and Linz.

The Importance of Traffic Engineering

Value of Proper Traffic Engineering Principles in Economical Operation of Telephone Companies—Illustrations Show Situation Graphically—Paper Presented at Annual Conventions of Missouri, Texas and Oklahoma Associations

By E. R. Stonaker,

Consulting Traffic Engineer, Stromberg-Carlson Telephone Mfg. Co. and Rochester Telephone Corp., Rochester, N. Y.

Invariably, on being asked to present a paper on the subject of "Traffic" to a gathering of practical telephone men, I am reminded of the description of a traffic man offered by the manager of one of the old-line companies.

He said the president had a nephew, a second cousin or something of the sort, who had just graduated from college and whom he wanted to place in his company. After starting him out in the wire chief's office and having had him passed along by each successive department head as soon as each one could get rid of him, the president came to the manager and said: "Bill, all the fellows have given that nephew of mine a trial, and now I wish you'd take him on regularly as a traffic engineer."

"All right, Boss," replied Bill. "You're the doctor, but what gives you the idea that he'll make a traffic engineer?"

"Well," said the president, "We've tried him out as an inside plant man, as an outside plant man, as a commercial man and as an auditor's clerk, and he seems to be a frost at each job, so I've come to the conclusion he must be a traffic engineer."

Now, that idea of traffic men and traffic considerations is still prevalent in a great many circles, but I want to say that the traffic job in any operating telephone organization is, or can be made, a regular man's job, and that traffic considerations are fully as important as plant and commercial considerations in any telephone job, whether it be of an operating or of a manufacturing nature.

I do not make this statement lightly. I have proved to my own satisfaction over a period of nearly 25 years in traffic operating, engineering and management work the practical hard-headed value of these principles.

In traffic management and engineering work with the New York Telephone Co., as superintendent of traffic of the Northern New York Telephone Corp., where decisions had to be made as to the type of equipment which best met the moderately-sized single-office operating situation, and in the past two years as consulting traffic engineer for the Stromberg-Carlson Telephone Mfg. Co. and the Rochester (N. Y.) Telephone Corp., where cord circuit and equipment designed to fit intricate multi-office operating conditions were the problems studied, I can honestly say that the use of the traffic engineering principles which I am going to attempt to outline in a general way, have proved invaluable.

Indeed, there were times when it seemed almost uncanny the way a given cord or trunk circuit or other equipment designed on the basis of these traffic labor values met practically 100 per cent the objectives set for it.

	Over 3,000 Lines		Less Than 3,000 Lines	
	Full Repetition Method	Restricted Repetition Method	Full Repetition Method	Restricted Repetition Method
Value of a local call on old type manual board....	1.00	.90	.90	.85
Value of a local call on Modern manual board	.77	.70	.70	.66
Value of a magneto rural call on old type manual board...	1.30	1.20	1.20	1.15
Value of a magneto rural call on modern manual board ...	1.07	.97	.97	.92
Value of post pay coin box call on old type manual board...	2.56	2.46	2.46	2.41
Value of post pay coin box call on modern manual board ...	2.33	2.23	2.23	2.18

For two line-lamp appearances multiply by.....	.94
For three line-lamp appearances multiply by.....	.91
For four line-lamp appearances multiply by.....	.89

	Number of Positions Teamed	
	Less than six	Six or more
Unit load per busy-hour operator or position	230	245

Fig. 1. Traffic Engineering Figures in Computing Certain Position and Operator Requirements.

Importance of Traffic Engineering.

Let me say again, the importance of the use of proper traffic engineering in the recommending of telephone equipment, especially switchboards and associated apparatus, cannot be over-estimated. The more I have to do with telephone problems, and the further I go into these problems, the more convinced am I that traffic engineering is indeed fundamental, since, unless the equipment furnished adequately meets the operating requirements, it might as well not be furnished.

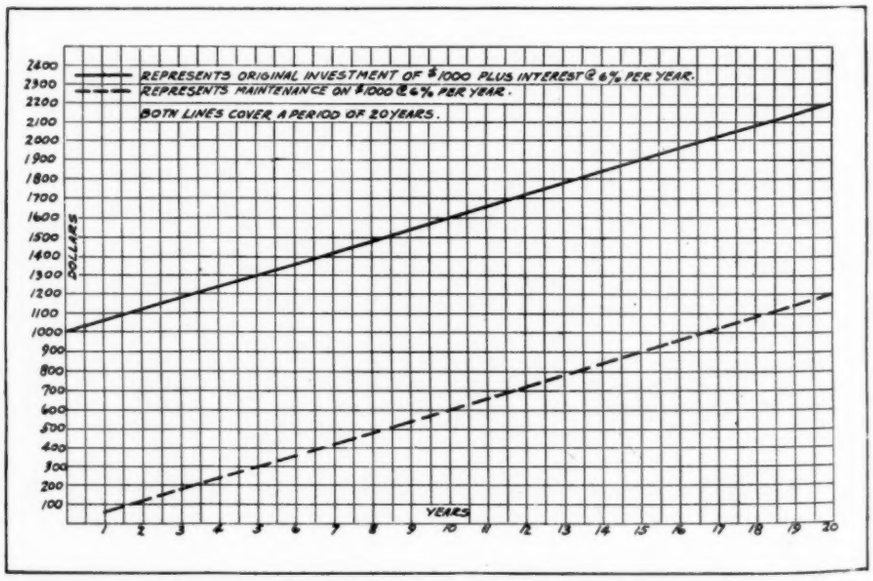

REPRESENTS ORIGINAL INVESTMENT OF $1000 PLUS INTEREST @ 6% PER YEAR.
REPRESENTS MAINTENANCE ON $1000 @ 6% PER YEAR.
BOTH LINES COVER A PERIOD OF 20 YEARS.
DOLLARS
YEARS

Fig. 2. Chart Indicating Additional Costs in Interest and Maintenance Over Period of Years on Original Investment of $1,000.

The methods used in computing the amount and arrangement of telephone equipment to meet the requirements of a given operating situation, are known as the practice of traffic engineering, since the problem of giving satisfactory telephone service is fundamentally a traffic one.

The Traffic Unit.

In standard traffic engineering practice, the unit of measurement used as a base for practically all computations determining requirements involving operating labor, is known as the "traffic unit." It is the actual work-time labor-value of the one flat-rate local call completed in the local multiple on a straight answering jack type, manual ringing, common battery "A" switchboard, without features. This is 11.75 seconds and is based on the ability of an *average* operator and the pace she can maintain throughout a working day without undue fatigue which would react on the quality of the service she renders.

Such a condition comprehends that she will be actually occupied in doing something in connection with the handling of calls 75 per cent of her time. When she is compelled to be actually doing something in connection with her work more than this 75 per cent of the total time, so that she does not have the other 25 per cent of the time as a respite, it has been demonstrated that she becomes fatigued to such an extent as to create a reaction on the service she renders. This shows itself in a higher percentage of slow answers and wrong numbers and other evidences of slow and inaccurate work.

Now let's do a little arithmetic: 75 per cent of a full hour of 3,600 seconds equals 2,700 seconds, and there are 230 units of 11.75 seconds each in a full work hour of 2,700 seconds. Wherefore, 230 traffic units or, as they are frequently termed, unit calls, constitute an average operator's standard theoretical hourly load.

This does not mean that no operator can handle any greater load. We know that they can and do, at times. In fact, where the conditions warrant it, an occupied time of 80 per cent or even 85 per cent may be assumed for the busy hour of the day, only, and a standard busy-hour load of 245 or 260 unit calls thus established. Caution must, of course, be exercised in such departures from the standard.

Traffic Labor Coefficient.

Please refer now to Fig. 1. Each class of traffic, or kind of call, handled, has a definite labor value expressed in terms of this traffic unit. For instance, the coefficient, or labor value, of a local multiple flat-rate call such as has been described as the base, is 1.00. This, then, is the value of a call on the old type manual common battery boards.

That value on a smaller than 3,000-line modern manual board, using restricted repetition, is reduced to 0.66, because of the operator labor-saving features on the board, whereas, on a magneto board it is increased to 1.30. Where there are three appearances of the line lamp on an associated lamp multiple modern manual board, the labor value of a local call is further reduced to 0.60, because of the assistance given in handling calls brought about by distributing the traffic by means of the lamp multiple.

In the same way, labor values are quoted for rural calls, coin-box calls, etc., each kind of call being given a definite value depending on the amount of labor involved in handling it as compared with handling a straight, local multiple, common battery call.

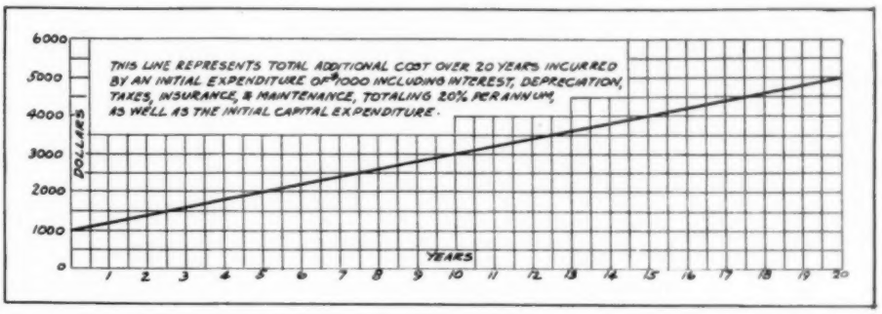

THIS LINE REPRESENTS TOTAL ADDITIONAL COST OVER 20 YEARS INCURRED BY AN INITIAL EXPENDITURE OF $1000 INCLUDING INTEREST, DEPRECIATION, TAXES, INSURANCE, & MAINTENANCE, TOTALING 20% PER ANNUM, AS WELL AS THE INITIAL CAPITAL EXPENDITURE.
DOLLARS
YEARS

Fig. 4. Chart Giving Additional Total Costs Over a 20-Year Period on Original Investment of $1,000.

Use of Traffic Coefficient.

Having the labor value, or traffic coefficient, of each class of call and knowing the number of traffic units an operator is expected to handle in an hour, we can determine the number of calls of each kind that an operator should handle in an hour. For instance, assume that we are using the 230-unit load basis, and we want to determine how many flat-rate local multiple calls an operator should handle on a modern manual board having three line lamp appearances.

We divide 230 by 0.60, the labor value or coefficient of such a call, and get 383, the number of such calls an operator should handle hour in and hour out, day in and day out. Assuming that she can maintain a faster pace during the busy hour by occupying 80 per cent instead of only 75 per cent of her time, we use the 245 unit basic load; and dividing this by 0.60 determine the busy-hour load, in calls, of an operator to be 408 calls.

The simplest way to use the traffic coefficient to determine busy-hour position requirements is to multiply the number of calls of each class by the coefficient of that class and then divide by the basic load. It can readily be seen that then we are not entirely shooting in the dark. We have definite values to tie to and definite methods of determining requirements.

In many cases the results will be the same as they were by the old methods, but how much more confidence you can have in those results in knowing that you are engineering equipment according to standard methods.

Accurate Records and Assumptions.

As can readily be seen, however, the whole value of the practice of traffic engineering is dependent on the accuracy of the traffic records used as a base and the correctness of the assumptions made from them. It is not contended that by the use

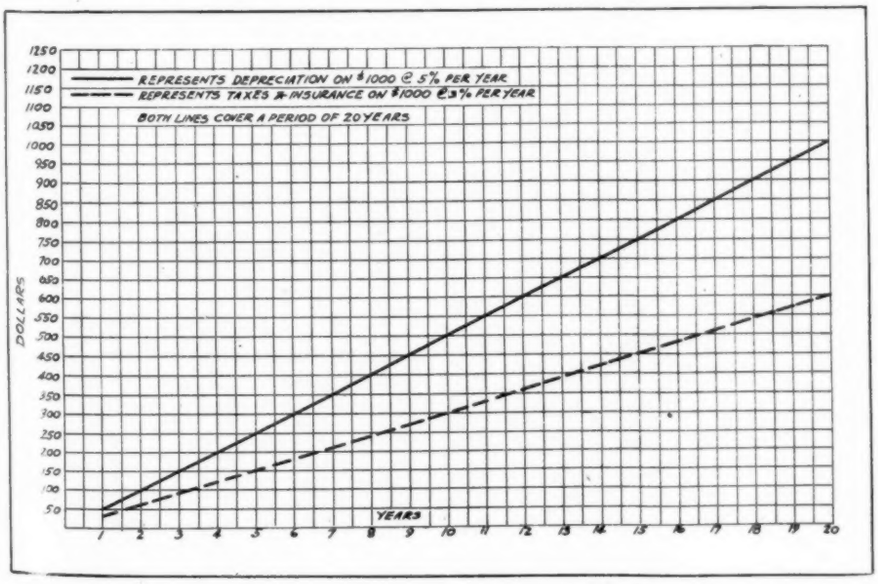

REPRESENTS DEPRECIATION ON $1000 @ 5% PER YEAR
REPRESENTS TAXES & INSURANCE ON $1000 @ 3% PER YEAR
BOTH LINES COVER A PERIOD OF 20 YEARS
DOLLARS
YEARS

Fig. 3. Chart Showing Additional Costs in Depreciation, Taxes and Insurance Over Period of Years on Original Investment of $1,000.

of standard traffic engineering practices, equipment can be designed to an arbitrary pattern, as in the case of machine-shop design or a suit of clothes, for instance. In other words, the use of this method does not take the place of the use of intelligence and good judgment.

It is merely a guide along the path of recommending and engineering equipment. As a matter of fact, it is no better than the man who is using it. If the use of this method of engineering the equipment results in something away out of line from what experience in the particular case being considered has proved practicable, it will be evident that the records furnished are inaccurate and modifications will have to be made accordingly.

To state the case in a few words, traffic engineering practices are a means to an end, and every precaution should be taken to keep them from becoming an end in themselves.

Traffic Data and Equipment Economy.

There is one way in which traffic data and traffic considerations should be used in the operation of a given plant which I believe is not stressed sufficiently. I refer to the use of such data to determine how economically a plant is being operated and what type of equipment best suits the situation.

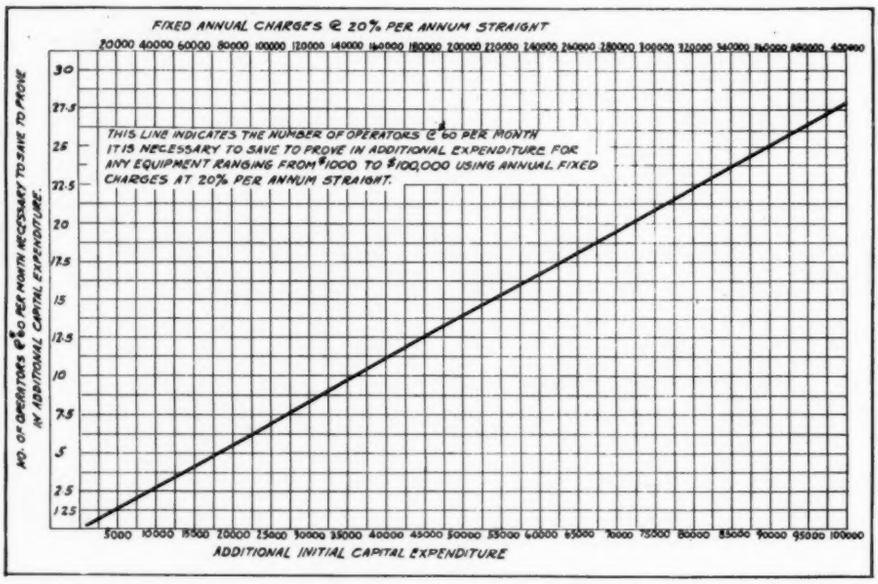

FIXED ANNUAL CHARGES @ 20% PER ANNUM STRAIGHT
THIS LINE INDICATES THE NUMBER OF OPERATORS @ $60 PER MONTH IT IS NECESSARY TO SAVE TO PROVE IN ADDITIONAL EXPENDITURE FOR ANY EQUIPMENT RANGING FROM $1000 TO $100,000 USING ANNUAL FIXED CHARGES AT 20% PER ANNUM STRAIGHT.
NO. OF OPERATORS @ $60 PER MONTH NECESSARY TO SAVE TO PROVE IN ADDITIONAL CAPITAL EXPENDITURE.
ADDITIONAL INITIAL CAPITAL EXPENDITURE

Fig. 5. Chart Showing Number of Operators to Be Eliminated to Prove in Additional Expenditures for Equipment.

Let's assume that you are considering making some expenditure on your switchboard, or replacing your switchboard because your plant has grown to a point where your present equipment no longer fills the needs of your public and your company. The question arises: "What type of equipment will most efficiently and most economically serve my needs?"

Assume that you're not even sure whether it would be more economical to install magneto or common battery; or that you have definitely outgrown magneto and are undecided between common battery and dial equipment. A very useful figure in solving such a problem is the annual traffic cost per busy-hour occupied position. The way to determine this figure is as follows:

First: Determine the number of positions that are occupied and operated during the busiest hours of your busy season. Maybe you only have a two or three-position board and occupy all of them, or maybe you are operating a fair-sized common battery board and occupy five or six positions or more.

Second: Determine your total traffic expenses for the past year. Simply use the figure you reported as traffic expense to the commission. In larger installations we analyze this figure in finer detail, but it is not necessary in the smaller companies.

Third: Divide this latter expense figure by the first figure, or number of busy-hour occupied positions, and the result is the annual traffic cost per busy-hour occupied position.

To illustrate: Suppose you reported $3,000 as your traffic expense last year, and your operators occupied two positions in the busy hour; $3,000 ÷ 2 = $1,500, the annual cost per occupied busy-hour position. Now, then, you wish to determine what type of equipment to install. You estimate the number of busy-hour positions you will have to occupy by use of the traffic coefficients I have mentioned, applied to the number of busy-hour calls you expect to handle.

You make this estimate for magneto and old type manual, if you are considering only those two; for modern manual, if you are considering that; and for dial equipment, if you are considering that. And don't forget that operators and switchboard positions are needed along with dial equipment to handle toll, rural and miscellaneous traffic.

Having determined the amount of each type of equipment necessary to meet your requirements, you obtain an estimate from the manufacturers, of the cost of the various types you are considering, and add the installing cost. The result is the comparable amount of fixed capital required in each case, to finance your proposition. Remember that that money in cold, hard cash must be obtained somewhere, no matter how you may show it on the books. Ledgers with retirement values shown on them are not dollar bills or gold pieces, or any other form of legal tender.

Now apply 20 per cent against these various fixed capital figures, and you have the amount of fixed annual charges in each case. This 20 per cent is divided as follows: For interest on investment, 6 per cent; taxes and insurance, 3 per cent; depreciation, 5 per cent, and maintenance, 6 per cent.

Now apply the annual cost per busy-hour occupied position, which you have already obtained as previously described, to the number of such positions you will require with each type of equipment being considered, and the result will be the total annual traffic costs for each type of equipment. Add fixed charges and traffic costs together, and you have the total operating cost in each instance.

By comparing the various results obtained you can determine, beyond doubt, the type of equipment which will meet your operating requirements most economically and most efficiently.

These total costs can be further reduced to a per station figure, of course, if it is desired to do so—for purpose of rate determination or for purpose of comparison with other companies or systems—by dividing the total costs by the number of stations.

Frankly I am a manual equipment advocate; certainly, when it comes to the problem of moderately sized single office cities and towns, and when I say manual, I mean modern manual.

The reasons why I favor this type of equipment in moderately-sized installations are:

It is self-evident that, when initial and maintenance costs are so much greater in the case of one type of equipment as compared with another, sufficient saving must be made in traffic expenses to prove in the more expensive equipment over the less expensive one.

I have prepared a few charts to show this situation graphically. These charts are self-explanatory. They clearly indicate the appalling additional costs foisted on a telephone company over a period of the life of the equipment for each $1,000 additional installed cost of any equipment over and above what is actually required.

It can readily be determined by the methods I have outlined, whether or not the additional cost of common battery over magneto equipment will prove in, whether

or not modern manual equipment will prove in over old type manual, and whether or not dial equipment will prove in over manual. Figs. 2, 3 and 4 indicate the total amount of money involved, as assuming a 20-year life of the equipment, in each $1,000 initial expenditure.

Fig. 2 indicates that in spending $1,000 initially, you are actually contracting to spend $2,200, including capital investment and interest over a 20-year period, and another $1,200 for maintenance over the same period.

Fig. 3 indicates that, on the basis of that initial $1,000 expenditure, you are also contracting an additional $1,000 for depreciation over a 20-year period and an additional $600 for taxes and insurance over the same period.

Thus, as shown in Fig. 4, the actual cost contracted for over a 20-year period is $5,000 for each $1,000 initial expenditure involved. Fig. 5 indicates the number of operators at $60 per month it is necessary to save to prove in additional initial expenditures for equipment ranging from $1,000 to $100,000. Thus, if a common battery equipment costing $7,200 more than a magneto equipment for the same town is to be proved in, it must be the means of saving two operators at $60 per month.

If modern manual costing $18,000 more than old type manual is to be proved in, it must be the means of saving five operators at $60 per month; and if, say, a dial installation costing $90,000 more than manual is to be proved in, it must be the means of saving 25 operators.

It can thus be seen wherein traffic considerations and traffic costs are usually the determining factor in any comparison looking toward the determination of the type of equipment to best suit a given operating condition, or toward the determination as to whether any given expenditure for the purpose of decreasing central office operating costs, is justified.

If I have, in this talk, cleared up any idea that any of you might have held that there was something mysterious or mythical about the practice of traffic engineering, it will have been worth while. If I have demonstrated that there is something of real, practical value to you in your job of giving telephone service in this use of traffic data as a guide to your problem, I will be more than satisfied.

Associated Telephone Utilities Co. One of Largest Independents.

The Associated Telephone Utilities Co. now has over 207,000 stations and is one of the largest if not the largest of Independent telephone companies. Last month it acquired 76 additional exchanges with a total of 44,092 stations. The headquarters of the operating group of its Middle West companies is at Madison, Wis.

Among the recent acquisitions of the Associated Telephone Utilities Co. are:

The Wolverine Home Telephone Co. with headquarters at Milford, Mich., owning nine exchanges having a total of 3,906 stations; the General Telephone Co. of Illinois with headquarters at Hillsboro, Ill., owning 16 exchanges with 2,320 stations; the Chemung Telephone Co. with headquarters at Sayre, Pa., having one common battery exchange with 2,689 stations; Western Pennsylvania Telephone Co. with headquarters at Windber, Pa., having nine exchanges with 3,789 stations.

North Creek & Chestertown Telephone Co. with headquarters at North Creek, N. Y., owning three exchanges with 737 stations; Luzerne Telephone Co., at Luzerne, N. Y., having one exchange with 188 stations; Black River Telephone Co. with headquarters at Lowville, N. Y., having 20 exchanges with 6,320 stations; Glen Telephone Co. with headquarters at Johnstown, N. Y., having 12 exchanges with 13,149 stations.

The Illinois Northern Telephone Co. with headquarters at Kewanee, Ill., having four exchanges with 10,939 stations, and the Three Lakes Telephone Co. with headquarters at Three Lakes, Wis., having one exchange with 55 stations.

These additional properties include 808 miles of toll pole lines and serve a population in excess of 330,000 in 256 communities. Of the 76 exchanges, 36 occupy rented quarters and 40 are in company-owned buildings.

"NEW GIRL!"

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Next to the discomfort one experiences in being served by a cold storage employe is, I believe, the annoyance one feels when a saleswoman attempts to serve us who does not know her stock well enough to know where to find the particular article we want—or the price.

"Have we——?" she asks her co-partner of the counter.

"On the bottom shelf," replies the long-suffering partner, with a little edge of irritation apparent, as she returns her attention to her own customer.

There follows a fumbling search on the bottom shelf, in which we also enter as we crane our neck from the customer side of the counter.

"New girl!" we mentally comment, for it is an easy matter to detect a new employe, especially when she goes in unprepared to handle the public in this day.

If the bottom shelf yields the goods, well and good. The new girl gets by.

But sometimes, and it is always when we are in a hurry, she plaintively calls to her co-partner, "It doesn't seem to be here, Miss Brown. I have looked in all of those boxes."

And we know that she has, because we have looked with her. Of course, we didn't get a good look as she clawed the stock over so feverishly. We even suggest, sometimes, "Look in that third box down, again."

When we are about to give up, along comes Miss Brown and puts her efficient hands on the right box.

All seems to be moving surely and slowly, but we still have ten minutes of our lunch hour left so we feel that our time has not been lost. And if the street signals are right we will arrive at work on time.

But, unfortunately, the article we have selected, and grown to want more and more, since the almost futile search began, seems to have no price tag on it.

"It must have dropped off," says New Girl, while she fumbles over the stock in the box to find another article like the one we want. But no such luck.

"Miss Brown, the price tag is not on this. Do you know the price? It is the only one she cares for," sighs New Girl. And now we know we are labeled "crank."

"I don't know. Look for the tag in the bottom of the box. That stock was all marked this morning. I'll help you as soon as I finish with my customer, if you don't find it."

At one minute of one we have dug up two tags; one marked 50 cents and the other 35 cents.

"I think this is the one," says New Girl as she attaches the 50-cent tag to the article we want.

A few minutes later we make our exit from the store with the article in our possession, and this thought in our mind: "I wonder if that *was* the right tag!" And our lunch hour 10 minutes past.

MORAL: New girls have to be trained but why at the expense of the public?

Sundry Snapshots Along the Trail

Observations Pertinent and Otherwise on the Sunshine and Shadows of Telephone Work

By Well Clay

Mother's Day.

Mere words are very weak indeed
With which to show, in time of need,
Our sentiments. We can only smile and say
To you, dear mother, on this day:
We love you.

You who risked that we might live,
Who gave us all you had to give
Of priceless love and tender care;
Should we withhold or effort spare?
We love you.

Years will come and years will go,
What they will bring we do not know,
But of one thing you may be sure,
In our hearts your place is quite secure:
We love you.

On a recent Sunday when all joined in honoring Mother's day and if possible spent the day with her, I wonder how many stopped to think that Mother's day, as an institution and a day especially set apart as such some time ago, has only been observed a few years.

It was set apart as such some time ago, it is true, but it remained for an enterprising florist to see the possibilities for profit for his guild if the idea could be put over in a national way. By uniting and pushing the proposition they have made Mother's day a real institution in America, and as a result sell annually, at this time of the year, millions of dollars' worth of flowers at greatly advanced prices, no doubt to their great profit.

Not only have they performed this seeming miracle by developing an idea, but its influence is felt in many other lines of business. The confectioner hastened to suggest that it could be said with flowers quite appropriately, but how much nicer with a box of candy!

Others caught the idea and all saw profit in its exploitation until millions of mothers are made happy every year and cash drawer bells tinkle merrily. Producing of this enormous volume of flowers and other things for this day's market gives employment to thousands of people and thus helps to add to that aggregate buying power which keeps us on a high level of prosperity.

Many of these mothers are, of course, mothers-in-law and when hubby says it to mother with flowers, friend wife sometimes must be remembered substantially to keep peace in the family. Thus doth that little mustard seed of an idea, which fell into the fertile soil of one man's brain, grow and expand until it covers the whole heavens.

Still some folks doubt the idea of miracles. This idea touches even the telephone business, and we learn to look forward to and prepare for extra telephone calls to mother, either local or long distance, on that day or the evening before. Many family reunions are made on that day, as a most fitting and convenient time. When the folks come back to the old home to see mother, they just have to put in a few telephone calls to old-time friends while they are handy, and that increases the number of calls still more.

Then, too, calls come in for the visitors to mother from out of town; calls from office and factory or homes for the people to whom mother refers to as children, but who are managers, superintendents, officials, or what have you, of important firms and organizations in the large busy centers of the nation's places of business. An aftermath is also noticeable the next day or two when mother calls up friends and tells all about it.

All this comes from the developed idea of one man. Many people bemoan the waste of modern ways of living and cite back to the good old days when it did not cost something merely to turn around. But, as one who remembers that in the good old days the possession of even a small amount of ready money was an almost unheard of thing among the common people, I cannot agree with them. We spend more but we have infinitely more to spend, and so does everyone else.

Modern machinery on the farm has solved the farm labor question and we now raise farm produce enough for all with little effort. This means the release of millions to other jobs. It means also that distribution, transportation, recreation, edification and speculation will be paramount activities, and in all of these the telephone is indispensable.

Proper distribution means that the produce must be when and where needed to get the profitable price. That also means telephone communication—constant. Transportation means getting everything everywhere the best, quickest and cheapest way—more telephoning.

Recreation is founded on the very bedrock of telephonic communication. Nine-tenths of all the appointments of modern days are made through the medium of a pair of plugs. Education and instruction are taking the up-to-date path through the air and the radio must depend on the telephone wires for long stretches of its road to market. Then there is speculation and its more conservative sister, investment, which call for constant communication via the telephone route.

It seems that with all the roots of the commercial life of the nation and the world so inextricably tangled in telephone wires we need not much fear for the permanency of the business. The only drawback seems to be that it looks a little too sure.

With the roots of business of the nation tied to the telephone wires it naturally follows that all side issues and new offshoots like Mother's day must of necessity depend upon and affect the business of furnishing telephonic communication.

As the nerve system of the body dominates and keeps in perfect balance and usefulness all the rest of the members of the body, so does the telephone network of the nation and the world perform a like function.

APHORISM: Work and not worry is the best buy for your energy.

London Paper Predicts World Use of One or Two Languages.

Will the very rapid strides made recently in international telephony lead to a common international language?

A recent issue of the Daily Telegraph of London, commenting on the fact that the language difficulty today is one of the main barriers to international communications, foresees the time when business and political intercourse will make some one or two languages understood by the educated all the world over.

From time to time an effort has been made to invent an artificial language for international use and such a system still has many advocates. The linking up of so many foreign countries by telephone during the past year has given new impetus to the movement and an international Esperanto conference, held in Antwerp last summer, attracted considerable attention and was widely attended.

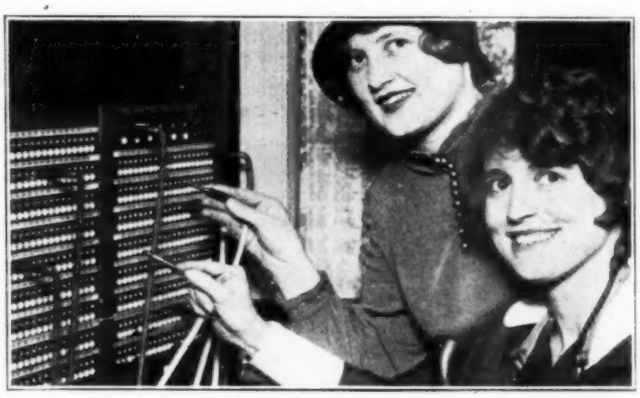
In many circles, however, there is a feeling that the extension of international communications is apt to lead not so much to the use of an artificial tongue, but to a wider study and use of one or two languages such as suggested by the Daily Telegraph. English and French or possibly German at once suggest themselves as the ideal languages for international communication.

The continued extension of international telephony makes the interest in this problem a keen one, and particularly is this true of Americans, for in this country there is not so great a speaking knowledge of foreign tongues as there is in Europe.

Here and There in Telephone Work

Ship-to-Shore Connection Facilitates Transaction of Business.

Among the most modern conveniences of the super-liner Malolo of The Matson Navigation Co., San Francisco, Calif., is a complete telephone system comprising a switchboard and auxiliary apparatus and 323 telephones located conveniently throughout the ship. In each cabin there is a telephone connected to the switchboard at which there is an attendant on duty from 6 a. m. to 12 midnight.



The P. B. X. Operators on the S. S. Malola of the Matson Line, San Francisco, Calif.

Keeping pace with the requirements of passengers, the designers of the Malolo have not forgotten that, although telephone service plays an important part in the operation of the vessel, it also plays an important part in ship-to-shore connections for last-minute orders of busy executives, social farewells and what not; also it eliminates messenger service between the ship and the Matson Line offices.

To provide this ship-to-shore connection at San Francisco, the Pacific Telephone & Telegraph Co. installed six telephone lines from the Matson line office switchboard to the dock. When the steamer arrived at her berth on her initial trip to San Francisco, connections were complete from the ship to the dock. Instantly telephone service was available to the Matson offices and to any telephone on the Pacific company's telephone system.

Commodore Peter Johnson is enthusiastic in his praise of the ship's telephone system and the ship-to-shore connection. "It used to mean cabin boys and speaking tubes in the old days," said he, "but this is great," as he smilingly completed a conversation through the telephone in his cabin with the Matson Line offices. The Malolo sails regularly between San Francisco and Honolulu, and facilities have been provided at the dock in Honolulu for ship-to-shore connections there.

The Magneto Exchange Repairman; the Bell or Ringer.

By John A. Bracken.

In addition to those parts of the telephone set which are principally concerned when carrying on a conversation and to signal the operator, there must be some means of calling the subscriber to the instrument. For this purpose there is provided, as part of each telephone set, an electromagnetic device in the form of a bell, or ringer as it is called.

The ringer comprises two electromagnets, a permanent magnet, a soft-iron armature pivoted in the center and attached to a rod and clapper, and other parts.

The ringer is actuated by an alternating current, and depends for its operation on the inductive effect of the permanent magnet. Fig *A* represents the core of an ordinary electromagnet with a permanent magnet placed at right angles to the center of it. The end of the permanent magnet in contact with the soft-iron core of the electromagnet is assumed to be the north magnetic pole. The lines of force composing the magnetic field—the region of magnetic influence surrounding the poles of a magnet—will flow lengthwise through the core from the center to the ends and then through the air to the south pole of the permanent magnet. The direction of this flow is indicated by the long, dotted lines.

The ends of the electromagnet core then will become, so to speak, extensions of the north pole of the permanent magnet. With an electric current flowing through the winding of the electromagnet, a second magnetic field will be created whose north pole will be at one end, the south pole at the other end. It can be seen then that at one end of the electromagnet core the two magnetic fields will be in harmony and thereby strengthened, whereas at the other end of the core the two magnetic fields will be in opposition and thereby weakened.

The magnetic lines of force set up by the electric current flowing through the electromagnet winding are indicated by the short, dotted lines in Fig. *A*. Referring now to Fig. *B* it will be seen that the parts corresponding to those described have the same relation to one another, as far as their electrical action is concerned, although their mechanical arrangement is slightly different.

Fig. *B* shows the two electromagnets, the upper ends of their cores being joined together by a bar of soft iron called a yoke, in the center of which is attached the permanent magnet. Across the lower ends of the magnet cores and the permanent magnet is placed the soft-iron armature.

The lines of force from the north magnetic pole of the permanent magnet will flow from the ends of the two electromagnet cores into the ends of the armature, and from its center to the south magnetic pole of the permanent magnet. This results in a continuous attraction being exerted at both ends of the armature of an equal amount and it remains balanced.

As soon as an alternating current passes through the electromagnet windings which are connected in opposition, the magnetic attraction exerted on the armature at one end will be strengthened as the result of the additional magnetic field of the winding but in the same direction as that being produced by the permanent magnet.

At the other end of the armature the attraction will be weakened, due to the opposition by the magnetic field of the windings to the permanent magnet. This condition results in movement of the armature and causes it to swing about its pivot so that the clapper strikes one of its gongs.

At the next instant the alternating current reverses its direction of flow, strengthening the core that was formally weakened. This will cause the armature to swing in the opposite direction and the clapper to strike the other gong. So long as the alternating current continues to flow, this action will be repeated, and the ringer

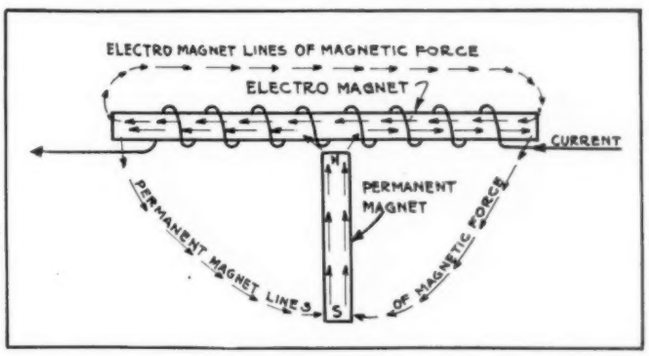


Fig. A. The Magnetic Fields of a Permanent Magnet at Right Angles to an Electromagnet.

will continue to operate. The action of the permanent magnet in the operation of the ringer armature has led to this device being called a "polarized" bell.

The alternating current supplied from the ordinary magneto generator when passing through the windings of a ringer causes its armature to vibrate on its pivots at the rate of about 20 times per second.

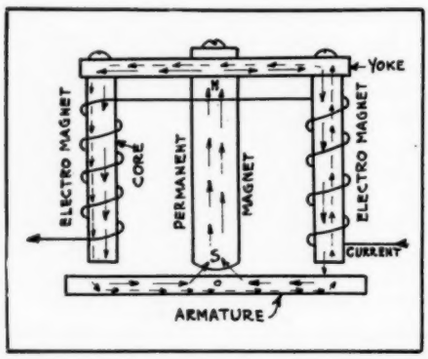


Fig. B. The Magnetic Fields in the "Polarized" Ringer.

Direct current, however, would have no effect upon the ringer unless it is interrupted in such a manner as to produce an alternating current effect.

A very common type of polarized ringer is shown in Fig. *C*. This type of ringer is used on lines where the conditions are such that either all of the ringers are to be operated at the same time, or only one at a time.

In the case where all the ringers are operated at the same time, the subscriber for whom the call is being made is notified of this by a system of code ringing made up of combinations of long and short rings. In the other, the ringers are arranged so that they are sensitive to different kinds of ringing current. When calling any certain subscriber's station, the kind of electric current must be used to which that station is particularly sensitive, then the ringer at that station will respond and no others.

This method of calling a station is known as selective ringing. In a magneto exchange it is usually accomplished by means of a regularly intermittent electric current called a pulsating current—that is, impulses in one direction with dead intervals between of equal length. It is obtained either by interrupting the positive or the negative current flow from a group of dry cells or from a special commutator on the central-office ringing generator.

To make the polarized ringer of the type illustrated in Fig. *C* sensitive to pulsating current of one polarity (positive or negative) it is necessary to bias the armature. This is done by attaching a fine, helical spring to one end of the armature and to the frame in such a manner that the end of the armature will normally be held against the adjacent electromagnet core.

Concerning the action of the pulsating current upon the biased ringer, it will be assumed that the electric current impulses are in such a direction through the electromagnets that they will exert the strongest pull on the end of the armature to which the spring is attached. As this end of the armature is normally being held against the core, the pull set up by the current will cause no movement of the armature and the bell will not ring.

However, if pulsating current of the opposite polarity is used, the strongest pull will be at the end of the armature normally held away from the electromagnet core. The pull of the spring, not being strong enough to overcome this magnetic pull, the armature will be drawn to the core at that end as long as the impulse lasts. When the current ceases to flow, the magnetic pull being removed, the action of the spring will be to move the armature in the other direction.

The result of this is that the armature will vibrate in response to pulsating current of the proper polarity in the same manner as if alternating current were used. Of course, a biased ringer will respond to alternating current equally as well as an unbiased ringer, since every other impulse will be of the proper polarity to operate it.

Operator's "Thank You" Adds Speed and Good Will.

A summary has just been made by the Wisconsin Telephone Co. of the psychological effect that "Thank you" has had upon Milwaukee subscribers. The practice of having operators use this phrase instead of repeating the number was instituted about a year ago.

The summary just made indicates that about 10 per cent of the telephone users—that is 75,000 a day—are sufficiently impressed by the courtesy to make some form of acknowledgment.

Of these replies, "You're welcome," is the most common. Other replies vary, including some such cheerful exclamation as "You bet." Occasionally there is a rather startled, "Huh?" from someone apparently not accustomed to such courtesy.

Telephone operators make the interesting observation that the number of telephone users who respond to their "Thank you" is increasing. That is the cumulative effect of saying "Thank you" 750,000 times a day, which is what the Milwaukee telephone operators are doing. The average Milwaukee telephone subscriber hears the telephone operator's "Thank you" five times a day.

Stop watch tests show that half the time that it formerly took with a call was saved and with the speeding up of completing calls satisfaction was increased. More than 250,000,000 times a year the telephone operators are inducing courtesy in Milwaukee by their "Thank you."

Survey of Telephone Conditions to Be Made in Fort Wayne, Ind.

In intermediate survey of telephone conditions in Fort Wayne, Ind., is to be made immediately by the Home Telephone & Telegraph Co., it has been announced by officials. Five years prior to the installation of the present dial system in 1920, the company made a survey and fundamental plan designed to cover an ultimate period of 20 years with the provision that an intermediate survey be made at the end of 10 years.

The rapid growth of Fort Wayne and the addition of many new industries has made it advisable to begin the survey at once. The main reason for the survey is to analyze the present and future market for telephone service so it may be possible to anticipate demands for service. A committee composed of representatives of the various departments will direct the telephone survey.

Device in London Pay Telephones to Signify Emergency Calls.

A scarlet disk is being placed in all multi-coin telephone boxes connected with manual exchanges in London, England, whereby emergency calls will be speeded up. In the disk is a button which, on being pressed, operates a flashing signal in the exchange, and to this immediate priority will be given.

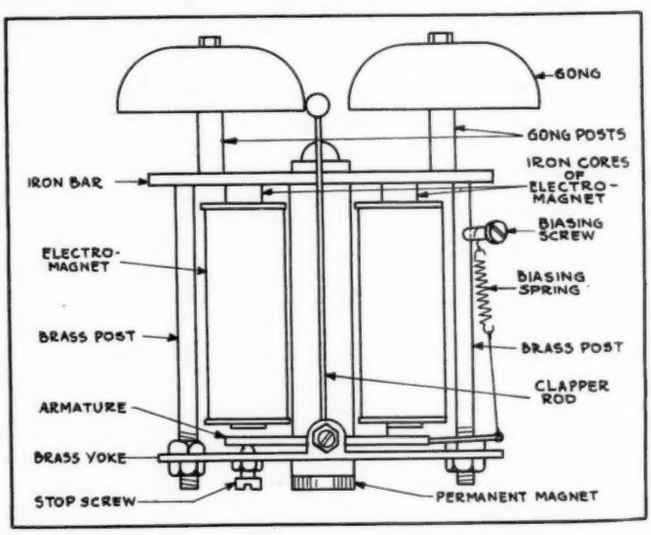


Fig. C. A Common Type of Polarized Ringer.

The installation of the disks is due to complaints that delays have occurred through having to place coins in the slot to make connections in such cases of emergency as the calling of fire brigades, etc.

Dial Telephone Service for Jamestown, N. Y.

John H. Wright Completes Arrangements for Conversion of Jamestown Telephone Co. System to Dial Operation, Together With Sub-Exchanges at Bemus Point, Frewsburg and Lakewood—Details of New Buildings and Equipment

Announcement has been made of the completion of negotiations between John H. Wright, vice-president and general manager of the Jamestown Telephone Corp., Jamestown, N. Y., and Automatic Electric Inc., Chicago, for the complete conversion of the telephone system of Jamestown to Strowger dial operation. The initial order is for 5,040 lines of automatic equipment. This includes the apparatus for the sub-exchanges at Bemus Point, Frewsburg and Lakewood, N. Y., which will operate as unattended sub-exchanges in conjunction with the main exchange at Jamestown. The order also includes a 24-position toll board and desks for information, testing and other special services.

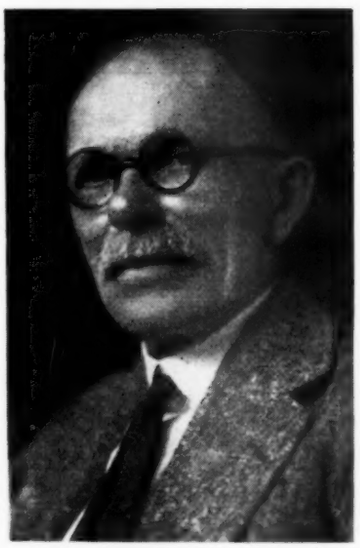
A splendid new office building, characterized by those who have seen the plans as being one of the finest structures in Jamestown, will be erected at East Fourth and Spring streets to house the new telephone equipment and to provide offices for the entire executive and operating personnel of the company. Handsome small exchange buildings, each having its own characteristics of architectural beauty, will be erected for the three sub-exchanges at Bemus Point, Frewsburg and Lakewood.

The first ground will be broken in July for the construction of the main exchange building and will mark the beginning of a modernization program for the Jamestown telephone system which will involve the expenditure of approximately $1,250,000. It is expected that the new building will be occupied and the conversion to dial operation completed by November, 1930.

The new telephone building will be worthy of Jamestown's business importance in every respect and detail of its construction. In order to provide for future growth the building has been designed so that two additional stories can be added in the future, making it a five-story building in its completed state. The north wall of the building and all columns along the north line are designed for horizontal growth in a northerly direction so that additional unit buildings, each 60 by 120 ft., may be constructed to the north of the present unit.

In this manner automatic telephone equipment which is placed in the second story, and toll equipment on the third story, can expand in either a vertical or a horizontal direction, depending on conditions as they develop. If additional toll equipment were required before automatic, the toll growth would be upward. If the automatic equipment growth were the greater, the building would extend to the north horizontally and the toll equipment would therefore, expand horizontally as required. Ample provision has been made inside the present new building for considerable growth of both types of equipment.

To meet this unusual condition of expansion, a modern adaptation of the perpendicular Gothic architecture has been



John H. Wright, Vice-President and General Manager of the Jamestown Telephone Corp., Who Recently Announced Plant Improvements and Installation of Dial System in Jamestown, N. Y., Involving Expenditure of Over $1,250,000.

chosen. The base will be of granite, the pilasters being ornamental brick work with stone ornament and finials and stone spandrels. The columns and floor construction are to be of reinforced concrete, using beamless or flat slab construction.

One of the leading industries of Jamestown is the manufacture of metal work, and in a spirit of pride in the city's accomplishments along this line hollow metal doors, metal partitions and metal kitchenette equipment have been chosen instead of other materials. In order to provide for expansion the offices will be divided by the latest type of steel interchangeable office partitions.

Linoleum will be used to cover the cement floors, which will provide a quiet, resilient floor and which at the same time will be fireproof.

Marble will be used for the floors and wainscot for the entrance vestibule and lobby, with ornamental plaster walls and ceilings. The remainder of the building will be finished in a simple manner, consistent with the uses to which the various sections are to be put. Ample and attractive facilities have been provided for the operators in keeping with the tradition of the telephone industry.

In the rear of the main building will be a garage capable of housing 30 cars and trucks. In it will be provided every modern facility for maintaining the company's motor fleet in the best operating condition. The garage as well as the main building will be fireproof in every particular.

The main entrance, on East Fourth street, near Spring street, will lead into a spacious lobby. The company's patrons will transact most of their business here at a counter extending along one entire side.

On the first floor is also provided space for the general accounting and commercial departments, rental bookkeepers and other commercial employes. Adjoining the commercial department, members of the staff having business with the public will occupy a suite of four private offices. The remaining space is occupied by the freight elevator, locker and wash rooms.

On the second floor will be placed the dial telephone equipment in a large central room. East of this switchboard will be a private office for the service observer who will have facilities for observing the service on all local and toll lines, both incoming and outgoing. Here also will be the offices for the engineering department, plant clerks and stenographers and plant superintendent.

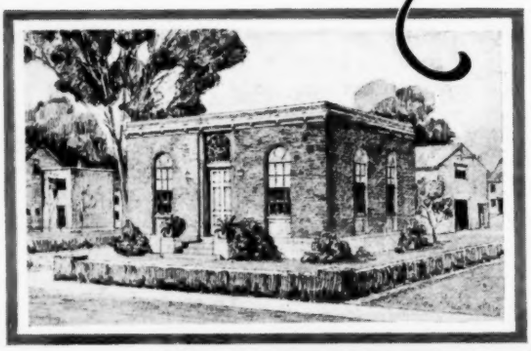
The toll board will be on the third floor. The 24 positions will be divided into two groups, one handling only outgoing calls and the other incoming and through calls. The dial system will allow the toll operators on much of the toll traffic to dial directly and immediately any desired local station while the calling party holds the line, so that toll service will be speeded up to a great extent.

On this floor will also be private offices for the chief operator and traffic superintendent, a room for the toll operators' school and rooms for traffic clerks. There will also be a rest and recreation room, kitchen, locker room, infirmary and toilet facilities.

In the basement will be located the charging machines, the ringing machines and the storage batteries, together with the company's printing department, store

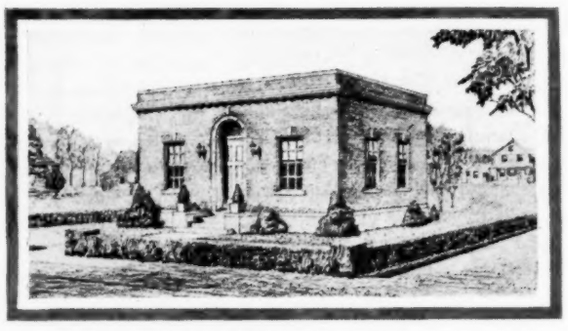
For Jamt

A New Era T



The Strowger Dial Sub-Exchange of the Jamestown Telephone Corporation to be built at Bemus Point.

The Beautiful New Building of the Jamestown Telephone Corporation, to be Erected to House the Strowger Dial Telephone Equipment for the Main Exchange.



The Strowger Dial Sub-Exchange to be erected at Frewsburg, New York, Owned and Operated by the Jamestown Telephone Corporation.

The Su... lt at Lakewo... Office Will Ha... ation, also, a... Main Exchan... Will the Oth...

STROWGER S

town, New York

Telephone Service Begins

N the field of Independent Telephony, the name of John H. Wright has always been synonymous with the highest als of the industry. The arrangements recently com- ted between Mr. Wright and Automatic Electric Inc. for complete conversion of the telephone system of the mestown Telephone Corporation at Jamestown, New rk, to Strowger Dial operation, constitute a typical ex- ple of his far-sighted business ability and progressiveness.

The Jamestown project will not be Mr. Wright's first ture into the field of dial telephony. Several other phone exchanges with which he is connected, notably se at Butler, Pa., and Ridgway, Pa., have, for several rs, been using Strowger Dial equipment with the atest success.

amestown is one of the most active and important cities western New York state, having a population of over 00. The initial order covers Strowger Dial Telephone ipment to serve approximately 10,000 stations.

The citizens of Jamestown are to be congratulated upon the progressiveness of their telephone company, which is making available for their use the most modern and efficient telephone equipment that it is possible to obtain

Mr. John H. Wright, one of the most widely known and progressive telephone executives in the United States, is president of the Jamestown Telephone Corporation. He is also connected in various executive capacities with the People's Telephone Corporation, Butler, Pa., the Home Telephone Company, Ridgway, Pa., and the Meadville Telephone Company, Meadville, Pa.

Automatic Electric Inc.

Manufacturers of Strowger Dial Telephone and Signaling Systems

Factory and General Offices: 1033 West Van Buren Street, Chicago, U. S. A.

Sales and Service Offices in All Principal Cities

EXPORT DISTRIBUTORS

For Australasia	Automatic Telephones, Ltd., Sydney
For Canada	Independent Sales and Engineering Co., Ltd., Vancouver
Elsewhere	The Automatic Electric Company, Ltd., Chicago

ASSOCIATED COMPANIES

American Electric Company, Inc.	Chicago
International Automatic Telephone Company, Ltd.	London
Automatic Telephone Manufacturing Company, Ltd.	Liverpool
The New Antwerp Telephone & Electrical Works	Antwerp

SYSTEMS

rooms for materials and supplies, and the heating and ventilating plant. A sub-basement along the Spring street side, under the main basement, will contain the vault for all incoming cables.

The Jamestown Telephone Corp. is now nearly 11 years old, having been incorporated September 23, 1918. John H. Wright, as vice-president and general manager, is one of the most widely known and progressive telephone executives in the United States, and his host of friends in the telephone field will be interested in his latest step along the line of modernization and bettering the telephone service and equipment of the Jamestown system.

Mr. Wright is also associated in an executive capacity with the Peoples' Telephone Corp., Butler, Pa., the Home Telephone Co., Ridgeway, Pa., and the Meadville Telephone Co., Meadville, Pa.

The New Main Exchange and Headquarters Office Building of the Jamestown Telephone Corp., Jamestown, N. Y., construction of Which Will Be Commenced Soon.

Other officers and directors of the Jamestown Telephone Corp. are William J. Maddox, president; William M. Blackstone, Victor E. Cooley, Robert H. Jackson, P. O. Jacobs, William J. Maddox, M. R. Stevenson, W. B. Woodbury, Lloyd C. Wright and John H. Wright.

The Jamestown company owns approximately 14,000 poles, about 3,210 miles of open wire, and 20,830 miles of wire in cable, of which 11,795 miles is in underground cable enclosed in 54.3 miles of underground conduit. At present it owns three buildings in the city of Jamestown—its general office building at 210 Pine street, its exchange plant on East Third street, and a large warehouse and garage on Washington street. In addition it rents offices for its engineering department on Spring street. The company will dispose of the three properties after the completion of its new central building.

The dial telephone equipment will consist of an initial installation of 4,660 lines of equipment for the main exchange, with other equipment for the three sub-exchanges, which will bring the total initial order up to 5,040 lines of equipment. The present number of subscribers in Jamestown is approximately 10,000.

The equipment to be provided for the main exchange will be grouped as follows: individual lines of equipment, 1,600; party lines, 2,500 (these will use frequency type selecting connectors, which will select the frequency of ringing current by means of minor switches; P. B. X. lines, 400; prepay pay-station lines, 100 (these will be full automatic in operation); official P. A. B. X. lines, 60 (these will be used by officials of the telephone company exclusively).

The Bemus Point sub-exchange will have initially 80 lines of dial equipment, the Frewsburg sub-exchange, 100 lines, and the Lakewood sub-exchange, 200 lines of equipment.

The three sub-exchanges will be operated on an unattended basis, with alarm signals extended to the main exchange. There will be free dialing between these three exchanges and the main exchange, the telephone user merely prefixing a certain digit or digits before the regularly listed directory number, to obtain any party in the other office districts. All information and special services for the three sub-exchanges will be handled by the special operators in the main exchange.

The main exchange equipment will be mounted on "Type 119" frames which are 11 ft. 9 ins. high. Self-aligning plunger-type line-switches will be used, mounted 400 on a frame, 200 on each side. The other equipment consists of the usual selector and connector groups, the latter divided as to class of service as indicated.

The power equipment will consist of two direct connected motor-generator charging sets, one of 200-ampere capacity, the other of 100-ampere capacity. Both will operate from the commercial current of 220 volts, 60 cycles, three-phase. A 50-ampere mercury arc rectifier will also be furnished for auxiliary charging purposes, which will operate on 220 volts, 60 cycles, single-phase. The standard full float scheme of charging will be used.

Two ringing dynamotors will be furnished, both of 150-watt capacity, and both operating from the storage battery. These will furnish standard 20-cycle ringing current and will be equipped with commutators to provide in addition the usual tones and high-frequency signaling currents. One other ringing dynamotor will also be provided to furnish 20-cycle ringing current to the toll board exclusively. Switching arrangements are such that if this latter machine should fail, either of the other two dynamotors could be utilized to provide ringing current for the toll switchboard operators.

The toll board, which will be furnished and installed by Automatic Electric Inc., will consist of 24 positions. In addition there will also be provided the following auxiliary equipment: a two-position test desk, five toll test panels, a four-position information desk, a one-position repair clerk's desk, a two-position chief operator's desk, a one-position monitoring desk and one attendant's cabinet for official P. A. B. X. use. Everything will be provided to contribute to the highest efficiency in the operation of the toll lines as well as the local stations.

Oklahoma Association Announces Dates of Telephone Meetings.

Places and dates for the first of the 1929 series of district telephone meetings of the Oklahoma Utilities Association were announced recently.

They are: Beggs, Tuesday, July 16; Wynona, Wednesday, July 17; Salina, Friday, July 19. The latter place and date have been selected not only to give an opportunity for a telephone meeting in a new location but also to enable those who so desire to enjoy a week-end vacation at Spavinaw Lake near Salina.

Another series of district telephone meetings are being arranged for the fall months and announcements of places and dates will be given later.

New Atlantic Telephone Cable to Start from Newfoundland.

An agreement has been reached between the American Telephone & Telegraph Co. by the telephone cable which the company plans to lay between America and Europe will be landed in Newfoundland. Connection will there be made with the Bell telephone system.

It is understood that the European end of the cable will be landed in Ireland.

Personal Notes from the Field

John Lahr has been appointed by the Lincoln Telephone & Telegraph Co. as manager at its exchange at Hastings, Neb., one of the large properties it maintains. He succeeds Roy H. Ojers, recently made district manager at Nebraska City.

Mr. Lahr was for some years manager of the Plattsmouth exchange, and later was in charge of the properties of the Nuckolls County Telephone Co., with headquarters at Nelson, Neb.

E. J. Howells, manager of the Decatur, Ill., exchange of the Illinois Bell Telephone Co. for the past six years and prior to that time for years in charge of the Kankakee plant, has been appointed manager of the Danville district of the Illinois Bell company.

Mr. Howells will still be responsible for the supervision of telephone service in the Decatur exchange, although having general supervision over the company's exchanges in ten central Illinois counties.

Mr. Howells started in the employ of the Illinois Bell Telephone Co. in Springfield on October 1, 1900. After filling positions in Springfield and Jacksonville he was transferred to Kankakee as local manager on September 1, 1916. He remained there until May, 1923, when he was appointed local manager in Decatur, succeeding Fred W. Kelly who was transferred to Springfield.

In the time he has been manager here Mr. Howells has seen the Decatur exchange grow steadily. The company is completing a new exchange building in Church and West North streets which will house the offices and plant equipment of the exchange which have already outgrown the present quarters. He will maintain his residence in Decatur for some time.

His broad knowledge of the various telephone requirements, his personal contacts with all phases of development in his section of the state and his ability to ably serve the needs of the diversified interests of the various communities are said to be responsible for his promotion to that of district commercial manager in the enlarged area.

John H. Ainsworth of Bennington, Kans., manager and part owner of the Meridian Telephone Co., has been appointed telephone engineer for the Kansas Public Service Commission. This is a new position on the commission. Mr. Ainsworth has been in telephone work for 41 years. He formerly was with the telephone department of the old public service commission.

His first position in the telephone field was as night operator for the Central Union Telephone Co. at Ironton, Ohio, in May, 1888. He later became manager at Jackson, Wellston, Ironton and Zanesville, all in Ohio, and was then made district manager for the Zanesville district. He was for a time acting division superintendent of Ohio and later was named manager of the Columbus exchange, then the largest in the territory operated by the Central Union Telephone Co.

John H. Ainsworth, Recently Appointed Engineer for the Kansas Public Service Commission.

In 1906 Mr. Ainsworth was elected general manager of the Dayton Home Telephone Co., a position he resigned after six years to become sales engineer for the Automatic Electric Co. He later engaged in valuation work at Newark, Ohio, for a brief time and followed this up by accepting an assignment to do special development engineering work for the Ohio State Telephone Co. at its Massillon and Canton exchanges.

With the completion of this work, he was transferred to Columbus on efficiency and economy work and later went to Youngstown as commercial representative, which position he relinquished to become PAX sales engineer for the Ohio State Telephone Co. He held a special commercial position with the Indianapolis Telephone Co. when the opportunity came in 1917 to join forces with the Tri-State Telephone & Telegraph Co. at St. Paul, Minn., as special commercial representative. A year later he joined the staff of the valuation department.

Mr. Ainsworth was connected with the Tri-State company until July 20, 1921, when he resigned to become telephone expert for the Kansas Public Utilities Commission. He has been in Kansas since.

J. F. O'Connell, president of the Commonwealth Telephone Co., Madison, Wis., has been elected vice-president of the Associated Telephone Utilities Co., the controlling company of a number of telephone properties in Wisconsin, Michigan, California, Illinoi, Texas, and other states.

Mr. O'Connell succeeds M. F. La Croix, Boston, Mass., as vice-president of the Associated company. Marshall E. Sampsell, of Chicago, is president of the company.

Obituary.

Joel M. Baldwin, for 25 years vice-president and general manager of the Monrovia Telephone & Telegraph Co., Monrovia, Calif., died at the Redlands hospital on Tuesday, May 7, following an operation performed on May 5.

Mr. Baldwin was born October 19, 1869, at Moore's Forks, N. Y. He received a high school education at Malone, N. Y., and in 1886 went west to Tacoma, Wash., where he was employed as a brakeman and later conductor for the Northern Pacific Railway Co.

He entered the telephone business in Chicago with the Western Telephone Construction Co. and learned the mechanical part of the business. He was placed in charge of the Richmond Telephone Co. at Richmond, Ky., in 1895, and remained in that position until 1901, when he became superintendent of the Richmond Water & Light Co., which position included the management of the gas, water and telephone plants of the city.

He went to Monrovia in 1904 and assumed temporary management of the Monrovia company, then owned by D. E. Juvenal. When Mr. Juvenal sold the plant, Mr. Baldwin was retained in the management by the new owners.

During his management of the Monrovia Telephone & Telegraph Co., Mr. Baldwin increased the plant and enlarged it to meet the present needs with the most modern equipment.

Mr. Baldwin built many telephone systems since going to California, among them the Sierra Madre, El Monte and Arcadia plants. He was manager of the Glendale Home Telephone Co. for many years and of the San Fernando plant, which he bought in 1914.

When the Monrovia plant was sold last August, Mr. Baldwin retired from active business. He was a member of the city council of Monrovia from 1908 until 1912.

He is survived by his widow, a daughter, Mrs. Orval E. Emley, and a brother, C. R. Baldwin, of St. Louis, Mo.

With the Manufacturers and Jobbers

Georgia Plant Is Changed from Magneto to Common Battery.

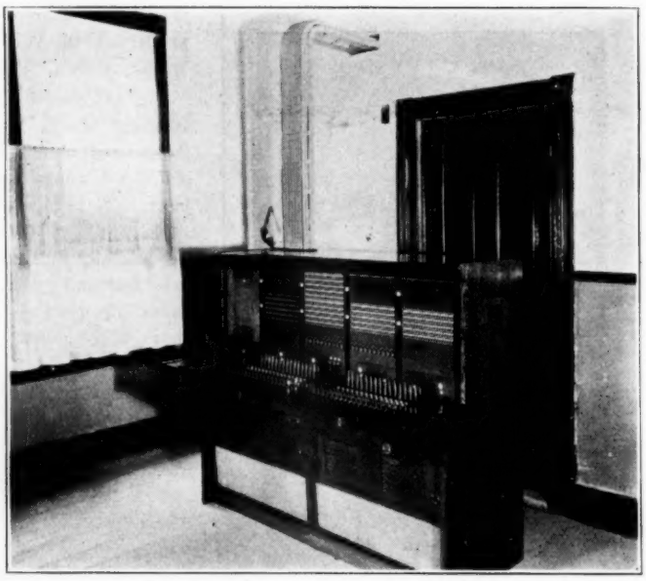
On the night of April 27 at ten o'clock there was cut into service in the city of Winder, Ga., a new common battery central office plant. The switchboard, manufactured by the American Electric Co., Inc., of Chicago, consists of two positions of 600 lines ultimate multiple; 400 lines equipped for common battery service, and 20 lines equipped for toll and rural magneto.

The first position is equipped for calculagraph and two-party selective ringing, with pigeon holes for long distance tickets.

The main frame and relay bay are in a separate equipment room and consist of eight uprights of Reliable Electric Co. main frame for 40 ultimate banks of protectors, with 21 equipped. The testing apparatus consists of a Weston Electrical test set hinged on the end of the main frame so that it can be read from any place in the room.

The power plant is composed of 12 cells Philco battery with an auxiliary of Philco type U. S. Dynamatic. The charging current is fed to the batteries through a rectifier from a 110-volt lighting circuit. A motor-generator set is used for ringing, with an emergency converter supplied from the lighting circuit.

At ten o'clock p. m. on April 27, Mayor McCants connected the first telephone at the main frame and put through the first call to the fire department. There were in attendance at the cut-over, members of the city council, Kiwanis club, Women's club, Young Matrons' Federated clubs, board of education, and other citizens of Winder.



The Two-Position American Electric Switchboard Installed in the Winder, Ga., Exchange.

The town of Winder, which has numerous overall factories and is located about 50 miles from Atlanta, now has one of the best telephone systems in the state of Georgia.

The Winder Telephone Co. is owned and operated by the Monroe Telephone Co. of Monroe, Ga.

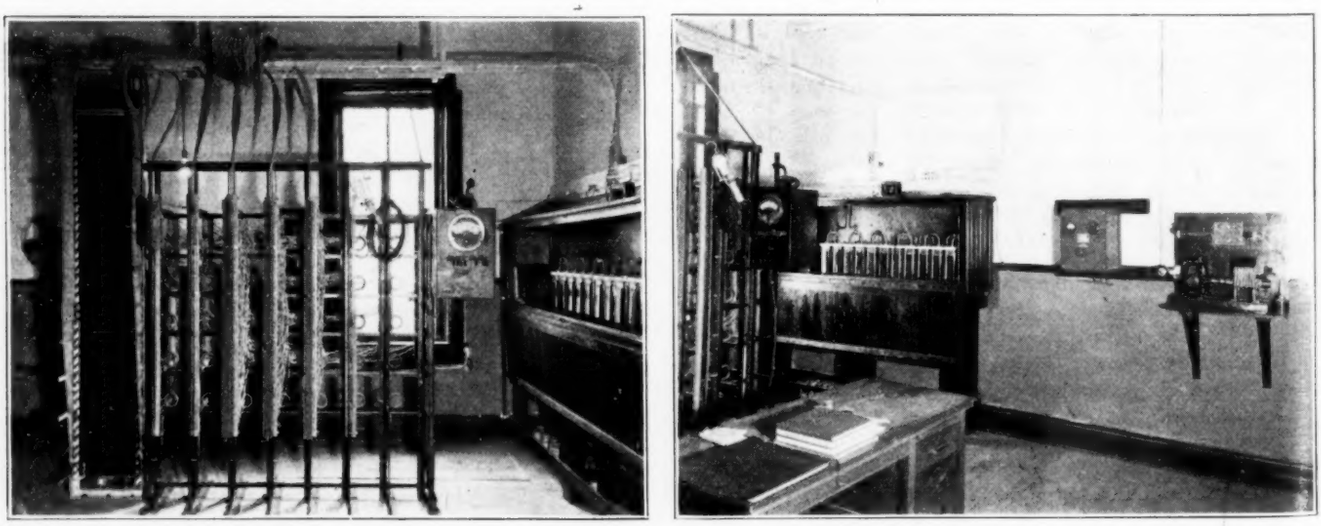
Stromberg-Carlson Showing New Art Console Radio.

All the advantages obtained through high modulation on the part of broadcasting stations are now made fully available in the No. 642 walnut finished Stromberg Carlson art console. The special methods of detection which are necessary in order to receive such broadcasting properly are made possible by the high amplification afforded by three UY-224 A. C. screen grid tubes in the radio amplified stages. The new UX-245 tube in the power output stage is another tube refinement which contributes to tone quality.

The great amplification afforded by the use of screen grid tubes in the three tuned radio stages, not only gives extra sensitivity, but permits what is known as "linear" power detection. This type of detection insures purity of tone on reception from broadcast stations with highly modulated signals.

The grid bias is automatically adjusted to the proper value for the strength of the signal received. The UX-245 audio output tube is designed to give high power output with moderate plate voltages and the high thermal inertia of its filament reduces ripple to a virtual inaudibility.

A non-rattling, moisture-proof cone is used in the built-in dynamic speaker and is suspended flexibly to give a sensitiveness that is not obtainable with designs using stiff suspension. The sentitivity of the speaker is of such an order that the output of one UX-245 tube in this particular receiver will give a response greater than that obtained from a larger



A View of the Terminal Equipment and Storage Batteries in the Exchange at Winder, Ga.—Another View Showing the Ringing Machine Equipment and Storage Battery.

tube, or two tubes in push-pull with ordinary circuits and ordinary design of less sensitive loudspeaker.

The speaker fits into a baffle compartment with rearward flaring side members which prevent cavity resonance. The cabinet of the No. 642 receiver is of a large size in order to afford an ample baffle for the built-in dynamic speaker. The control panel and loudspeaker grille are of Haskelite pressed wood to represent hand carving, and can be concealed by sliding doors of figured wood.

The New Stromberg-Carlson Art Console No. 642.

The loudspeaker, the chassis, and the front panel are all built together and make one unit which can be slid out of the cabinet if necessary. The loudspeaker is fitted to its particular receiver chassis, and both are tested for their acoustical fitness to the particular cabinet before all are assembled.

Provision is made in this model, as with all Stromberg-Carlson receivers, for using the audio system in conjunction with a pick-up for the electrical reproduction of phonograph records. The pick-up may be left permanently plugged into the jack provided in the rear of the cabinet as it is connected into circuit when the volume control is turned completely to the "off" position.

The control for volume on radio signals is dual in action, operating on the signal as it enters the receiver and also controlling the amplication of the first two radio tubes. This gives complete control of the strongest signals without introducing distortion or affecting the fine selectivity of the receiver.

Northwestern Bell Reports Growing Use of Telephone Typewriter.

Northwestern Bell Telephone Co. officials report a constantly growing use of the telephone typewriter in the larger cities that the company serves. These are used by business houses having offices in two or more cities and contribute greatly to effective business administration.

The Nebraska Buick Automobile Co., which has warehouses and offices in Lincoln and Omaha, is a typical example. Formerly orders for parts from one office to the other were consigned to the mails, with a 24-hour delay. Now the telephone is used on an average of 40 or 50 times a day.

The keyboards are similar to the ones on ordinary typewriters. Two designs are used: One is the tape type size, and the other the standard letterhead size. They operate on the wires much like the telegraph machines that the newspapers use.

The telephone typewriter is especially adapted for department stores, insurance companies, hotels and railroads for communication between their units.

The "Neophone"—A New High Efficiency Telephone.

The convenience of telephones of the microtelephone pattern is generally recognized, but in the past their inferior transmission efficiency and articulation as compared with fixed transmitter instruments of the solid-back type, as well as their tendency to "howl" and "fry," has prevented their adoption for the public telephone service.

As the result of a number of years of research work, Siemens Brothers & Co., Ltd., Woolwich, England, have in cooperation with the British Post Office engineers, produced an entirely new design, immersed electrode, inset transmitter, which in conjunction with a special anti-side tone circuit, it is claimed, not only positively eliminates howling, frying and excessive side-tone, as well as maintaining its efficiency irrespective of the position in which the microtelephone is held, but is actually superior as regards articulation and considerably better in speech transmission efficiency than the standard solid back transmitter.

This constitutes a very real and important advance in telephone technics, the increased efficiency incidentally enabling higher resistance local lines to be employed without reducing the speech transmission efficiency, and on this account far-reaching economies in line plant may be effected.

It is interesting to note that in the construction of the "Neophone," as the new telephone has been christened by the manufacturers, Siemens Brothers & Co., a molded insulating compound has been largely employed, the case, microtelephone handle and the cradle all being made of this material.

The Neophone as a Complete Telephone Without Dial for Manually-Operated Systems.

The pattern adopted by the Post Office uses a separate bell set, but a special design of bell set which can be used as a base on which to mount the telephone set, makes provision for a complete instrument for those who prefer this type.

This new telephone is certain to be very popular, but as the British Post Office has placed a contract with the manufacturers for 50,000 instruments, it will, of course, be some time before they are available in sufficient quantities to meet the demand.

The Neophone With Separate Bell and With Dial for Automatic Systems.

Prices in the Metal Markets.

New York, June 3.—Copper—Quiet; electrolytic spot and future, 18c. Iron—electrolytic spot and future, 18c. Lead—Steady; spot New York, 7.00c; East St. Louis, 6.80c. Zinc—Quiet; East St. Louis spot and future, 6.55@6.60c.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Proposed Inquiry of All Communications by Senate Committee.

Senator Couzens of Michigan on May 29 introduced a resolution proposing an investigation of all communications services and the relationships between the corporations engaged in carrying on any interstate communications services. He proposes to have the investigation made by the Senate committee on interstate commerce, of which he is chairman.

The resolution was referred to the committee on interstate commerce and reported favorably to the Senate on June 4.

The resolution (S. Res. 80) reads as follows:

"Resolved, That the committee on interstate commerce, or any duly authorized subcommittee thereof is hereby authorized and directed to:

(1) Investigate the relationship existing between the different kinds of communication services used in interstate and foreign commerce, including radio, telephone, telegraph and all kinds of wireless and cable services so used, and transmission of power or wireless.

(2) To investigate the connection, relationship and ownership and control of corporations and persons engaged in carrying interstate and foreign communication services and to investigate their trade practices and trade activities, including contracts and stock ownership.

(3) To investigate any and all other connections, relationships and activities of persons or corporations engaged in interstate and foreign communications by either wire or wireless, as the committee may deem necessary.

The committee is hereby authorized and directed to make the aforesaid investigations for the purpose of reporting legislation to the senate for the purpose of controlling and regulating interstate commerce by radio, telephone, telegraph and-or any or all other form or forms of communication or transmission of power by either wire or wireless.

For the purpose of this resolution the committee, or any duly authorized subcommittee thereof, is authorized to hold hearings, to sit and act at such times and places during the sessions and recesses of the senate until the final report is submitted, to employ such clerical and other assistants, to require by subpoena or otherwise the attendance of such witnesses and the production of such books, papers and documents, to administer such oaths, and to take such testimony and make such expenditures as it deems advisable.

Every person who, having been summoned as a witness by authority of said committee or any subcommittee thereof, wilfully makes default or who, having appeared, refuses to answer any question pertinent to the investigation herein authorized shall be liable to the penalties provided by section 102 of the revised statutes of the United States. The cost of stenographic services to report such hearings shall not be in excess of 25 cents per 100 words. The expenses of the committee or subcommittee, which shall not exceed $15,000, shall be paid from the contingent fund of the senate upon vouchers approved by the chairman.

Radio Patents Figure in Testimony on Communications Bill.

Creation of a "patent pool" for radio similar to that adopted by the automobile industry and under which radio manufacturers would be privileged to use all available patents with payment of royalties agreed upon, was recommended before the Senate committee on interstate commerce on May 27 by Oswald F. Schuette, executive secretary of the Radio Protective Association, during the hearing on the Couzens bill to create a federal communications commission.

Charging the Radio Corp. of America and its affiliated companies with possessing an "illegal" monopoly of radio patents, the witness said that only by such an arrangement can the condition be corrected. Radio manufacturers, he said, would pool their patents under "reciprocity" arrangements, and the greatest benefits would accrue to the people and to the industry.

The automobile patent pool, Mr. Schuette declared, has placed that industry "10 years ahead." Recently, he added, the aeronautical industry adopted a similar arrangement, and for radio "it is the only solution."

Mr. Schuette charged that the R. C. A. is endeavoring to "monopolize" branches of the entertainment field. Should its plans materialize, he said, it "will be bigger than the government of the United States and the head of the 'trust' will be greater than the head of the United States."

Mr. Schuette declared that the resources of the companies comprising what he termed the "radio trust" amount to approximately $5,000,000,000. He cited figures from the balance sheets of the five companies showing resources of $4,887,874,969 in December, 1928. These were as follows:

American Telephone & Telegraph Co., $3,826,683,584; General Electric Co., $460,455,322; Westinghouse Electric & Manufacturing Co., $233,690,111; Radio Corp. of America and Victor Co., $144,563,336; United Fruit Co., $225,482,616.

Taking up the patent situation, Mr. Schuette said he did not contest the patent laws, but that in the radio industry he was opposed to a "combination" of patents which in the case of the so-called "Radio Trust" is in "restraint of trade."

"The 'Radio Trust,'" continued the witness, "has no right to monopolize patents in radio."

The witness said, responding to Chairman Couzens of Michigan, that he understood the R. C. A. holds more than 3,500 patents. Only a small number of them, he said, have been adjudicated. Many radio patents, he asserted, are purchased, but not used, but he said he has no record of those not used.

Such restraint of patents, he declared, should not be allowed, being in violation of the anti-trust laws. He referred to a court case in New Jersey involving charges that the R. C. A. had employed "spies" in the plant of the De Forrest company relative to alleged patent infringement. The court criticized the R. C. A. for this action, he said.

As a solution of the patent situation, by which the independent manufacturers are said to be dominated by the R. C. A., Mr. Schuette suggests the creation of a radio "patent pool," such as that adopted by the automobile industry, and only recently adopted by the airplane industry. By this means, he said, all radio patents would be placed into a pool with all manufacturing companies drawing from it, paying corresponding royalties.

Stating that the Department of Justice has held that such pools are "not obnoxious to the anti-trust laws," Mr. Schuette pointed out that recently the Chrysler corporation entered the automobile field, without a patent of its own, but by the "reciprocity" terms of the pool, it has made available to the automobile industry many new valuable patents since then.

An effort should be made to revise the patent laws, he declared, asserting they have not been changed in 50 years. In that time, he said, the entire industrial structure of the country has changed.

In the television field Mr. Schuette charged that the "Radio Trust" has tried to "prevent the independents from invading it so that they can catch up." At a hearing before the Federal Radio Commission recently, he said, engineers of the

AMERICAN STEEL & WIRE COMPANY

PERFECTED

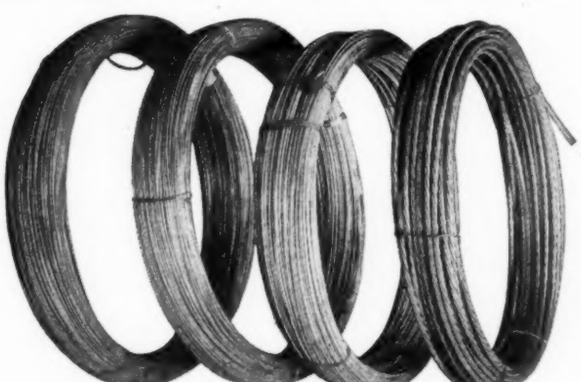
Telegraph *and* Telephone Wire

SERVICE MUST BE MAINTAINED

Whether it hails, rains, or freezes, your lineman, your trouble shooter is on the job to maintain service.

—and Perfected Telegraph and Telephone Wire has the same good qualities. Its in-built quality comes out in dependable performance. Our new process of tight zinc galvanizing makes it ideal for service. The smooth deeply laid zinc is as flexible as the wire itself, assuring impenetrable protection.

For the good of the service insist on Perfected Telegraph & Telephone Wire—produced in the standard reliable Brands "Extra BB", "BB" and "Steel."



Perfected Extra BB | Perfected BB | Perfected Steel | Perfected Strand

American Steel & Wire Company

Subsidiary of United States Steel Corporation

208 S. La Salle Street, Chicago — 30 Church Street, New York

Other Sales Offices: Boston, Cleveland, Worcester, Philadelphia, Pittsburgh, Buffalo, Detroit, Cincinnati, Baltimore, Wilkes-Barre, St. Louis, Kansas City, Minneapolis-St. Paul, Oklahoma City, Birmingham, Atlanta, Memphis, Dallas, Denver, Salt Lake City. U. S. Steel Products Company: San Francisco, Los Angeles, Portland, Seattle. *Export Distributors:* United States Steel Products Co., 30 Church St., New York.

When writing to American Steel & Wire, please mention TELEPHONY.

various "trust" groups testified that visual broadcasting is not yet practicable, whereas the independent companies claimed definite progress.

Mr. Schuette recommended that no radio license, either for broadcasting or communications, be issued to licensees who do not make available to the industry all the radio apparatus they manufacture "with equal fairness."

In this connection, he charged, the R. C. A. has refused to sell certain types of equipment to competitors.

"The R. C. A. is dissolving itself into a series of subsidiary companies with itself as a holding company to evade not only the radio act but other laws," said Mr. Schuette. R. C. A. Communications, Inc., recently separated from the Radio Corp. of America, he said, was organized to safeguard the communications services of the company and "prevent revocation of their operating licenses."

Discussing the recommendations of Captain S. C. Hooper, director of naval communications, that the administration of radio be left to the Department of Commerce, Mr. Schuette said he "appreciates the kindly sympathy of Captain Hooper toward the R. C. A.." If the administrative functions of radio went to the commerce department, he said, the secretary himself would not be able to handle it, with the result that a subordinate official would be left with these important duties.

The "Radio Trust," Mr. Schuette charged, "is now seeking to monopolize various branches of the entertainment field. If this monopoly does succeed and does achieve what it has laid down as its program, the government will take it over and there will be government ownership," he concluded.

Chairman Couzens intervened to state that the Congress and the government would not countenance a monopoly of that magnitude.

For its entire radio patent holdings, including the fundamental Schloemilch Von Bronk tuned radio frequency device, seized during the World War by the alien property custodian, the Department of the Navy paid only $1,690 to the custodian, the committee was informed on May 28 by Lieutenant Commander Harold Dodd, in charge of the patents section of the office of the judge advocate general of the Navy.

Testifying in the inquiry into Navy radio patent holdings, Commander Dodd said the government now holds 55 former German radio patents. Originally, he said, 106 patents were acquired from the alien property custodian, but the number has been decreased by the expiration of patent rights.

The first lot of radio patents, said the witness, were purchased February 6, 1919, for $500, at private sale from the property custodian. The remainder was acquired April 10, 1919, for $1,190. In this group, he said, was the Von Bronk patent, performing the same function as the Alexanderson patent, controlled by the Radio Corp. of America. Basically the patents are identical, he said, and are employed in every receiving set.

The committee also heard Grover W. Ayers, executive secretary of the Ten Miles Square Club, of Washington, D. C., an organization opposed to suffrage in the District of Columbia. He criticized local broadcasting stations for refusing to permit the broadcasting of speeches in opposition to District suffrage when speeches on the affirmative side of this issue are offered regularly. Mr. Ayers suggested several amendments to the Couzens bill to remedy this condition.

Commissioner Eugene O. Sykes of the Federal Radio Commission told the committee on May 29 that he favored the principle of a centralized control of wired and wireless communication contemplated in the Couzens bill (S. 6).

"I am a very strong advocate indeed of the zone system," replied Commissioner Sykes. "I believe it gives to the commission, through the commissioner from that zone, a more intimate knowledge of conditions there. The present zone arrangements are working very nicely."

Commissioner Sykes suggested that the Couzens bill should incorporate a proviso which would permit the commission, after an equalization of the zone assignments of radio facilities required by law, to use unassigned frequencies as it may think best to serve the public.

Regarding a license fee on broadcasting stations, the witness said that he saw no reason why there should not be a tax on so valuable a franchise but questioned the advisability of such a proposal at the present time because radio broadcasting stations are not making money.

"They have evidenced every desire that they want to continue, however," he stated. "I don't think that such a tax would retard the betterment of programs which are steadily improving."

G. Stanley Shoup of the transportation division of the bureau of foreign and domestic commerce, Department of Commerce, read to the committee a statement devoted to an historical development of communication systems.

Mr. Shoup brought out that in 1928 there were 361,631.4 nautical miles of cable in the United States, of which 55,764.5 miles were operated by government administrations and 5,473.6 miles were German cables not yet apportioned.

Private companies, he testified, operate 300,393.3 miles of which British companies operate 168,193.4 miles, American, 93,203.1 miles, French, 18,414.4 miles, Italian, 9,937.3 miles, Danish, 8,416.4 miles, and German, 2,144.7 miles. Mr. Shoup also stated that in Europe telegraphic communication is losing ground to telephonic communication.

A merger between radio and cable companies would unquestionably give better service to the commercial interests of the country, Mr. Shoup stated. On the other hand, he pointed out that such a merger might tend to hold back the full development of radio.

Foreign trade of the United States, he said, is increasing continually and needs good communication with foreign countries. He stated that it is an open question whether two or three American companies can compete successfully with the British monopoly.

Mr. Shoup reviewed for the commission the history of cable and radio communication development in various parts of the world. He spoke particularly of the beam radio system, which was effective in England. He said that this system had played havoc with the cables of Great Britain and that this was largely the reason for the recent cable-radio merger.

The hearings were discontinued on May 29 subject to the call of the chairman. It was considered probable they would be resumed this week for a short time and then adjourned for the summer.

Chicago Council Orders Monthly Check of Telephone Suit Fund.

The Chicago city council has ordered the controller to submit monthly reports on expenditures of the $150,000 and $50,000 funds appropriated by the council to carry on the telephone litigation in federal court and the negotiations for a new telephone franchise. The council also extended the present franchise of the Illinois Bell Telephone Co. until September 9.

The report, according to the resolution, must show the name and address of persons employed, the amount paid to each, and the character of service performed.

Commission Does Away with Free Service Between Farmers.

The Nebraska State Railway Commission finds that there is nothing to compel the Washington & Western Telephone Co., of Verdigre, and the Ponca Valley Telephone Co., of Verdel, to continue to furnish free service to the patrons of the Pishelville Short Line Telephone Co., just because they have done so for a long time in the past, and has authorized discontinuance.

The Pishelville company is situated south of the Niobrara river, beyond the territory of the Ponca Valley company, which has one rural circuit extended to two subscribers in Pishelville, an inland town. In the home of one of these subscribers a knife switch was installed with which he is able to connect the farmers' lines through to Verdel and to Verdigre, under which arrangement 34 farmers have been getting free service from the Ponca Valley company.

The Washington & Western company also has a farm line extending 24 miles

LONGER LIFE IN SERVICE...QUICKER COMEBACK

You get something more than a battery when you buy a Ray-O-Vac Telephone Battery . . . you get longer service, and staying power plus, and a snappier, quicker comeback that lasts all through the battery's long life. So why not standardize on Ray-O-Vac's...then you're always sure of getting your money's worth...and more. And remember that Ray-O-Vac Telephone Batteries don't cost any more than other kinds.

FRENCH BATTERY COMPANY
Factory: Madison, Wisconsin
Sales Office: 30 North Michigan Ave., Chicago

The French Battery Company make Ray-O-Vac Ignition, Radio and Flashlight Batteries and Ray-O-Vac Rotomatic Searchlights.

RAY-O-VAC
TELEPHONE BATTERIES

When writing to French Battery Co., please mention TELEPHONY.

to Pishelville, and upon this two farmers have knife switches. By means of these, farm-line subscribers were able to transfer messages to either Verdigre or Verdel. As there were 21 Washington & Western subscribers on this one farm line, when the 34 at Pishelville were attached, it made the astounding number of 55 on one line. The commission says good service is impossible under such conditions.

The commission was curious to know why such free service was given, but the only theory advanced which pointed to any compensation for the use of the switchboard and operating facilities of the two companies was that the arrangement constituted an interchange of service making it all more valuable and desirable. It developed, however, that there were only 34 farm line subscribers involved as compared to 330 subscribers at Verdigre and slightly in excess of 200 at Verdel. Not a cent compensation was paid.

The commission says that the uniform practice has been to regard this as switching line service to be paid for at a monthly rate. Pishelville has no exchange, and those subscribers who appeared at the hearing said they were willing to pay a reasonable rate. The commission fixes this at $6 a year, payable in advance quarterly, and gives the Pishelville users the option of taking or leaving it.

Additional Stock Authorized to Retire Current Indebtedness.

The Wood Lake Telephone Co. has been authorized by the Nebraska State Railway Commission to issue $4,000 of additional stock. The proceeds will be used in retiring a current indebtedness incurred in putting in additions and betterments, and the remainder will be employed for still further extension of lines and increase of exchange equipment.

The commission found it necessary, because of the confused condition of the company's accounts, to make an inventory of the property. It was found that the original cost was in excess of $13,000, and that its present value is close to $10,000. As the stock outstanding previous to the issuance of the order was but $2,625, the commission finds that the request is a modest and proper one; and being for corporate purposes, should be and is granted.

Proposed Additions to Oklahoma Commission's Order.

The Oklahoma Corporation Commission recently issued a notice directed of all persons, firms, corporations, lessees, trustees or receivers engaged in telegraph, telephone and other wire communications and operation of steam or electrified railroads or railways, stating that on July 2, 1929, at the state capitol there will be a public hearing before the commission relating to proposed additions to commission order No. 1946.

This order was issued in 1922, and prescribes rules governing the construction of telegraph, telephone, electric lines and power transmission lines in Oklahoma. The proposed additions to the order pertain to rules and regulations for laying telegraph, telephone and other wire communication lines and cables through crossings under tracks of steam and electrified railways and other matters connected with this subject. The notice was dated May 24, 1929, and was signed by all three commissioners.

The proposed new regulations have not yet been published. The proposed rules contain specifications for the location and construction of conduits for carrying communication lines under steam and electric railways tracks. Many other construction details are included.

Final rules and regulations will be prepared and approved by the commission following the public hearing on July 2.

San Antonio, Texas, Copyrights Its Brief in Rate Case.

The city of San Antonio, Texas, has filed a request with the patent bureau in Washington to have the recently published brief of the city in the Southwestern Bell Telephone Co. rate case copyrighted. The purpose of having the brief copyrighted, Mayor C. M. Chambers, said, would be to enjoin others from changing the title of the case, and having it printed as a regular textbook. Letters have been received from 100 other cities of the country requesting a copy of the brief in the case.

The mayor said that the decision in the case, which is pending before Judge J. B. Dibrell, special master in chancery, would probably not be handed down until late in the summer. He said the telephone officials were recently granted a 15-day extension to reply to the city brief, and other extensions may be allowed due to the fact that the city answer is rather lengthy.

The case was originated when the company obtained a temporary injunction in federal court against the city to prevent it from enforcing a city ordinance regulating public utilities. The company at the time raised its rates from 20 to 33⅓ per cent. The case consumed several months' time, in which testimony was heard from all angles.

City Files Reply in Bell Franchise Suit in Portland, Ore.

The reply by the city of Portland, Ore., in the suit brought against the Pacific Telephone & Telegraph Co. to compel compliance with the franchise adopted by the voters at the election last November, has been filed in the federal court at Portland. This action followed Judge Bean's recent decision overruling the city's motion to strike out certain of the defenses set up by the telephone company in its answer.

The reply, in particular, denied that the company is now operating under ordinance, its previous franchise having expired February 19, 1927.

The reply denied that the telephone company has been operating a telegraph business in the city as well as a telephone business; denies that the company has given to the city $50,000 in cash and service a year, but admits that the company has paid $15,000 in cash for the use of the streets; denies that the company must collect the rate schedule referred to in its answer if it is to continue to furnish service in the city, and admits that the city does claim the right to "regulate rates as one of the terms and conditions upon which the defendant many continue to occupy the streets and public places for the purpose of serving said city."

The city also admits that it claims the right to bargain with the company for rates and has proposed a straight cut of 25 per cent and seeks to fix other terms and conditions, and that the company and the city have been unable to agree upon the extent of the city's rights in the matter.

In case the position of the city is not sustained by the court and a decree is granted to the telephone company throwing out the proposed franchise, Frank S. Grant, city attorney, will ask the city council for permission to appeal to the circuit court of appeals at San Francisco. It may be that the case will find its way to the United States Supreme Court.

Increased Schedules Effective After Consolidation Is Complete.

In a recent decision of the Wisconsin Railroad Commission, the Wisconsin Telephone Co. was authorized to consolidate its Cedarburg and Grafton exchanges and its Thiensville and Freistadt exchanges and upon completion of the consolidation to place in effect a new schedule of rates. For local and rural service the new schedule for net monthly rates is as follows:

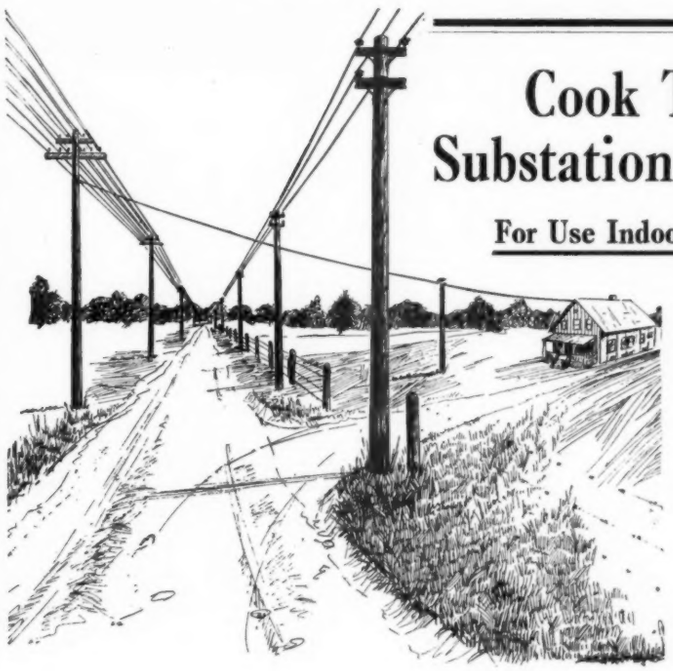
Business, one-party	$4.50
Business, two-party	4.00
Business, extension	1.00
Residence, one-party	2.75
Residence, two-party	2.25
Residence, four-party, divided ringing	2.00
Residence extension	.75
Rural party line, wall set	2.75
Rural residence	2.00
Additional charge for each one mile or fraction thereof beyond 6 miles.	.25

Small Wisconsin Company Given Authority to Increase Rates.

The Soldiers Grove Farmers Telephone Co. was recently granted authority by the Wisconsin Railroad Commission to increase its rates. Old and new net monthly rates of the company are:

	Old.	New.
Business	$2.00	$2.50
Residence	1.25	1.50

Gross rates are 25 cents per month in addition to the above net rates and the



Cook Type O Substation Protection

For Use Indoors or Outdoors

- Porcelain Base and Back
- Galvanized Bracket
- Zinc Hood
- Bronze Fuse Clips
- Carbons and Dielectrics
  or
- True Gap Dischargers
- Four Different Lengths of Fuses

Line and Instrument Wire Connected on Opposite Sides of Porcelain.

THIS IS A SMALL, NEAT, COMPACT PROTECTOR, OF STURDY CONSTRUCTION, HIGH QUALITY, AT AN UNUSUALLY LOW PRICE.

COOK ELECTRIC COMPANY

2700 Southport Ave. CHICAGO

ZETKA SPECIAL VACUUM TUBES

For the rigid requirements of Telephone Repeaters and Amplifiers, Special characteristics, together with longer life, insure a minimum "replacement" problem.

Grid, Plate and Filament are designed to produce *maximum* efficiency under actual operating conditions.

Zetka Special Tubes *cost* more—and are *worth* more.

Send us *your* specifications and operating conditions. We will be glad to cooperate with you to increase your efficiency.

Radio Utilities Corporation

67-73 Winthrop Street
Newark, New Jersey

TELERING

ONE REED!

ONE CONTACT!

IDEAL WAVE FORM

MONEY BACK GUARANTEE

Converts 60 Cycle Lighting Current to 20 Cycle Ringing Current
NO RADIO INTERFERENCE
Very low current consumption
Try out our Heavy Duty Model EX TELERING
equipped with Filter and be convinced.
Price $44.00—F.O.B. Elyria
IT PAYS FOR ITSELF
Sold by Leading Telephone Distributors
Manufactured by

The Colson Co., Elyria, Ohio

(Write for booklet)

difference is allowed as a discount for prompt payment of bills. Hours of service are also ordered to be increased.

The company serves approximately 246 subscribers in and about Soldiers Grove. The switchboard is of magneto type and the lines of grounded return.

Commission Grants Increased Rates to Wisconsin Company.

The Peoples Telephone Co., operating exchanges at Mount Hope, Bloomington, Patch Grove, Bagley, Mount Ida, Werley, Woodman and Millville, Wis., serving 1,070 subscribers, was granted permission on May 28 by the Wisconsin Railroad Commission to increase its rates. New net rates of the company are:

Business, one-party	$6.00
Business, two-party	5.25
Residence, one-party	5.25
Residence, two-party	4.95
Residence, four-party	4.50
Business, rural	5.25
Residence, rural	4.50

The value of the property was reported to be $40,361.06 as of December 31, 1928, which is approximately $38 per station. Operating revenues for the year 1928 were $18,912.15, the commission found, and operating expense $15,251.89, leaving $3,660.26 available for depreciation and return.

The rates which the applicant proposed, the commission found, will yield approximately $3,500 of increased revenue if all the subscribers retain their present class of service, which figure is not excessive and the increased rates were therefore approved.

Summary of Commission Rulings and Schedule of Hearings.

CALIFORNIA.

May 25: The Public Utilities California Corp. asked authority to purchase the Eel River & Southern Telephone Co., operating at Ferndale, and to issue $36,800 of common capital stock in payment therefor.

May 25: The Pacific Telephone & Telegraph Co. authorized to purchase from J. R. Fort the so-called Coast Telephone Co.'s telephone property at the Cambria, Cayucos and Mopro Bay exchanges on or before September 1, 1929, for the sum of $27,500, plus additions and betterments made since September 24, 1928, and to operate it as a part of its system.

May 27: Permission granted the Santa Monica Bay Telephone Co. to issue $275,000 of 6 per cent promissory notes for the purpose of renewing for one year outstanding notes.

May 27: The Kerman Telephone Co. applied for authority to issue its note, bearing interest at the rate of 7 per cent per annum to the amount of $15,000, for the purpose of renewing an outstanding note.

May 29: The Lake County Telephone Association authorized to sell its properties in Kelseyville and vicinity, Lake County, to the Northern California Telephone Co. for the sum of $3,895, plus the cost of additions and betterments made since August 1, 1928. The commission also authorized the purchasing company to establish rates for local exchange service at Kelseyville fixed by the commission and which are equivalent to those charged in similar territory elsewhere.

ILLINOIS.

June 4: Hearing at Springfield before Commissioner Trovillion in the matter of the proposed advance in rates for service of the Porterville Telephone Co. in Eaton, Annapolis and vicinity, stated in rate schedule Ill. C. C. No. 2 first revised sheet filed by the company.

June 4: Hearing at Springfield before Chairman Moynihan in the matter of the application of the Teutopolis Telephone Co. for an order authorizing the issue of $5,000 of its capital stock.

June 4: Hearing at Springfield before Chairman Moynihan in the matter of the application by the Farmers & Merchants Telephone Co. of Moultrie County for an order authorizing the issue of $12,000 of its 6 per cent three-year gold notes.

June 5: Hearing at Springfield before Commissioner Kuhn in the matter of the application for approval of sale by the Pecatonica Mutual Telephone Co. of Pecatonica and purchase by the Peoples Mutual Telephone Co. of the Pecatonica company, Winnebago county, and also for a certificate of convenience and necessity to the Peoples Mutual company to operate the telephone properties in Pecatonica and vicinity.

June 20: Hearing on proposed raise in rates of Standard Telephone Co. of Illinois at Decatur, postponed from May 23.

KANSAS.

May 17: Application granted of the Winchester Telephone Co. to discontinue all toll service and all other service to others than subscribers to the company.

June 29: Hearing at Coats in the matter of the complaint of the subscribers of the Coats & Southwestern Telephone Co. relative to service received.

MISSOURI.

May 28: Application approved of the Ozark Central Telephone Co. for authority to purchase the telephone exchange property at Meta, Osage county.

May 28: Charges and regulations contained in the schedule of the Tina Telephone Co., Tina, suspended for a period of 120 days or until otherwise ordered by the commission.

May 28: Consolidated Telephone Co. of Skidmore authorized to file the following schedule of rates: Business service, $2.00 per month; residence service, inside and outside the city limits, $1.50.

May 29: In the matter of the suspension of the rates of the Conception Junction Telephone Co. of Conception Junction, rates approved and allowed to become effective June 1.

May 29: Southwestern Bell Telephone Co. authorized to sell and the Southeast Missouri Telephone Co. authorized to purchase and operate the telephone exchange property located at and in the vicinities of Benton, Bloomfield, Campbell, Cardwell, Caruthersville, Clarkton, Chafee, Charleston, Dexter, East Prairie, Essex, Hayti, Hornersville, Kennett, Lilbourne, Malden, Morehouse, New Madrid, Oran, Portageville, Poplar Bluff, Sikeston and Senath and the certain toll property located in Scott, Mississippi, New Madrid, Stoddard, Butler, Dunklin and Pemiscot counties.

May 31: Ozark Central Telephone Co. filed application for authority to file a schedule of increased rates for its exchange at Cabool, Texas county, when the exchange is changed from the magneto system to a common battery system.

MONTANA.

June 11: Hearing on application of the Miles City-Ekalaka Telephone Co. for abandonment of its line. Hearing postponed from May 22 since patrons are considering reorganization of the line as a rural company.

NEBRASKA.

May 28: Application filed by the Nebraska Central Telephone Co. asking for authority to cancel grounded circuit rates at its Gibbon exchange where no service of that character is longer demanded, and to cancel 25-cent rate additional for service outside municipal zone.

May 28: Application filed by the Lincoln Telephone & Telegraph Co. for authority to abolish grounded circuit rural service at its Edgar exchange and to charge $1.75 for metallic circuit service.

May 29: Applications of the Washington & Western Telephone Co., of Verdigre, and of the Ponca Valley Telephone Co. for authority to cancel free service to subscribers of the Pishelville Short Line Telephone Co. found reasonable and granted; it is further ordered that for the future any patron of the Pishelville company may obtain switching service from either of applicant companies on payment of $6 a year, quarterly in advance.

May 29: In the matter of the application of the Lincoln Telephone & Telegraph Co. for authority to add 25 cents a month to charge made for monophones when they are desired in colors; found reasonable, and authority granted as requested.

May 31: Application filed by the Northwestern Bell Telephone Co. for authority to increase rates for all classes of service at its O'Neill exchange upon transformation of service from magneto to common battery, accompanied by petition of consent from 92 per cent of patrons served.

May 31: In the matter of the application of the Wood Lake Telephone Co. for authority to issue $4,000 of additional stock, to retire floating indebtedness and finance additions and betterments; found that it is necessary for corporate purposes, and permission granted as asked.

OKLAHOMA.

May 21: Application granted of the Southwestern Bell Telephone Co. to increase exchange rates at Maud.

June 4: Hearing on the citation by B. Richardson vs. Southwestern States Telephone Co. alleging violation of order No. 879 relating to filing of annual reports with the corporation commission.

June 4: Hearing on citation by B. Richardson vs. Southwest Telephone Co. alleging violation of order No. 879.

June 4: Hearing on citation by B. Richardson vs. Noble Hardy, owner and manager of Berwyn Telephone Exchange, alleging violation of order No. 879.

WISCONSIN.

May 28: Application granted the Peoples Telephone Co., Mt. Hope, for authority to increase rates.

May 28: Independence Telephone Co., Independence, granted authority to increase its rates.

May 28: County Telephone Co. authorized to discontinue its present rate for service and substitute the rate proposed in its application in this case.

May 28: Cuba City Telephone Exchange Co. granted authority to place in effect an increased schedule of rates at Cuba City.

May 29: Chippewa County Telephone Co. ordered to extend its lines to junction of County Trunk E with the existing lane leading from County Trunk E to the resort of John Sturner, provided that Mr. Sturner agrees to construct a line from his resort to the said point and pay in advance rental for three years for the class of service desired.

ASSOCIATED TELEPHONE AND TELEGRAPH COMPANY

Kansas City Chicago New York London

Authorized Capital $22,000,000
Paid-Up Capital Over $11,000,000

THE ASSOCIATED TELEPHONE AND TELEGRAPH COMPANY, which is owned by British and American Interests, undertakes outside of United States of America:

1. Engineering, Construction, Management and Operation of Complete Telephone Installations.
2. The Examination, Negotiation and Acquisition of Telephone Concessions.
3. Financing Telephone Operating Properties, or Extensions to Existing Plant.

THE ASSOCIATED TELEPHONE AND TELEGRAPH COMPANY and its Allied Companies own and manage directly or indirectly upwards of 300,000 Telephones, and are connected with important British and other Manufacturing and Financial Interests throughout the World.

Corporate Headquarters: 100 West Monroe Street, Chicago
Cable Address: "TELANTEL"

Bankers in U. S. A.
Commerce Trust Company, Kansas City, U. S. A.
Harris Trust and Savings Bank, Chicago, U. S. A.
Guaranty Trust Company

U. S. Financial Agents: Theodore Gary and Company, Kansas City

Bankers in London
Westminster Bank, Limited

London Financial Agents: Theodore Gary and Company, London
Stafford House, Norfolk Street, Strand, London, W. C. 2.

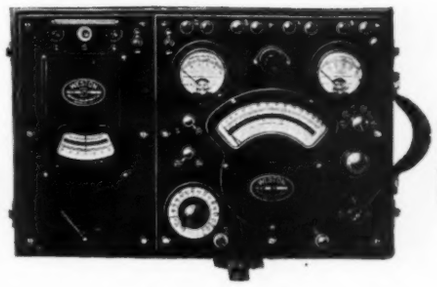
Crapo
GALVANIZED PRODUCTS

The pure zinc coating on *Crapo* Galvanized Telephone Wire and Strand is ***non-peeling, non-cracking.*** Even when subjected to splicing, twisting or bending, this protective coating remains uninjured.

That is why *Crapo* Galvanized Products are outlasting all others in actual service. That is why users, year after year, are reducing maintenance costs to new low levels....

Crapo Galvanized Telephone Wire and Strand can be obtained from representative Jobbers. Insist upon *Crapo* quality! You can identify it by the *Crapo* Tag....

Indiana Steel & Wire Co.,
Muncie, Indiana



Production Tester—
that insures uniformity of tubes

THE Model 526—Type 6 Radio Tube Tester is made primarily for set and tube manufacturers. It is a triumph in instrument design and embodies features which make it invaluable as a production testing instrument. Its use as a bench test set insures uniformity of tubes, while its design and construction provide for high speed operation.

No calculations or correction factors are necessary, all tube characteristics being quickly obtainable by *direct indication.* It is simple to operate, positive and reliable.

The tube manufacturer will find the Model 526 indispensable in reducing the time element of testing tubes as well as minimizing labor and material losses. It accelerates mass production processes, increases output, protects guarantees—and most essential of all, it insures the uniformity of the product.

The Model 526 is a marvel of simplicity—only a few quick operations being necessary for a complete test. Refer to our nearest sales office for full particulars, or write direct to the factory.

You can be assured of UNIFORMITY by the following tests:

1—*Short Test:* By turning Hi-Speed handle, lamps indicate shorts between elements as well as filament continuity.

2—*Gas Measurement:* Depress button and read value *directly* on micro-ammeter.

3—Read amplification factor *directly* on amplification dial.

4—Read plate impedance and mutual conductance directly on large instrument scale.

WESTON ELECTRICAL INSTRUMENT CORP.
576 Frelinghuysen Ave. - Newark, N. J.

Weston
PIONEERS SINCE 1888
INSTRUMENTS

Condensed Telephone News

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items Relating to Construction, Rebuilding, or Changes in Their Plants and Systems

New Incorporations and New Telephone Companies.

SHERRILL, ARK.—Articles of incorporation for the Sherrill Telephone Co., capitalized at $5,000, were filed recently.

J. M. Barrett, Sr., is president; Dr. L. D. Hutchins, vice-president, and A. R. Merritt, secretary and treasurer. Other incorporators are: Jo Nichol, Pine Bluff; W. I. Payne, L. W. Quattlebaum, Lee M. Quattlebaum, R. P. Cratin, A. L. Vick, A. H. Rogers, M. P. Walker and J. M. Barrett, Jr.

SPRINGFIELD, ILL.—The Haw Grove Mutual Telephone Co. has been issued a charter by William J. Stratton, secretary of state, to operate telephone lines and switchboards and furnish service to members at cost in that community. Oscar Martin, William McCreary, Arthur List Ross Bellas and Horace Melton are the incorporators, and Mr. McCreary is designated the principal agent at Mason City, route No. 4.

MT. VERNON, OHIO—Papers have been filed with the secretary of state chartering the Mt. Vernon Telephone Corp. with an authorized capital of 100 shares of no par stock for the purpose of buying, leasing or otherwise acquiring telephone exchanges and toll lines and to operate them for the giving of service to subscribers and the public. The incorporators are F. J. Van Vorhis, W. R. Stull and Henry C. Devin

Financial.

CHICAGO, ILL.—A dividend of $2.00 per share was declared at meeting of the board of directors of Illinois Bell Telephone Co. recently, payable June 29, 1929, to stockholders of record June 28, 1929.

SALINA, KANS.—A surplus of $199.67 is reported by the Salina Telephone Co. in a report of business transacted from January 1 until November 1, 1928, in the annual return received by the public service commission recently.

Total revenue for the year is noted at $7,027.69, while expenses from operation and depreciation are given at $6,098.02 and $730, respectively.

Elections.

GALESBURG, ILL.—Lawrence D. Johnson, secretary of the Fidelity Savings & Loan Society, has been elected director of the Intrastate Telephone Co. to fill the vacancy caused by the recent death of W. E. Phillips. Mr. Johnson was cashier of the Bank of Galesburg for several years before becoming associated with the Fidelity company and is a widely known young business man. Directors reported that 200 new lines were cut in recently, providing for addition of nearly 500 telephones to the exchange, which is expected to meet immediate service demands and provide for the future.

FULTON, N. Y.—The annual stockholders' meeting of the Oswego County Independent Telephone Co. was held recently at which time I. H. Griswold, Plattsburgh, was reelected president. Other officers reelected included A. W. Wiltsie, vice-president and treasurer, and A. H. Shean, secretary. Directors were then elected and Howard A. Wilson, Fulton, was selected to fill the vacancy created by the retiring of Fred A. Gage from the board.

Other directors elected were: I. H. Griswold, Plattsburgh, A. W. Wiltsie, Fulton, Ward Wiltsie, Hannibal, W. E. See.ey, Norwich, T. Harvey Ferris, Utica, W. B. Woodbury, New York City.

The directors voted in favor of the company taking over the Palermo Telephone Co.

DARLINGTON, WIS.—At the annual meeting of the Belmont-Pleasant View Telephone Co. Mr. Hinkins was elected president; Jasper Teasdale, vice-president; John Hillery, Sr., secretary-treasurer; and Sam Byrne, A. I. Taylor, Richard Moody, John Lee and J. Metcalf, directors.

Construction.

CHICAGO, ILL.—At its recent meeting the board of directors of the Illinois Bell Telephone Co. approved an expenditure of $1,130,728 for new plant in the city of Chicago, and $662,923 for Illinois outside of Chicago, making a total of $1,793,651. The total approved for this year is $11,-728,099.

NEOGA, ILL.—O. A. Logue of Casey, manager and owner of the C. T. & N. Telephone Co., Inc., will erect a new building for the Neoga exchange.

KNOXVILLE, IOWA.—The Bellamy Telephone Co. has launched upon a program of improvements and extensions which will entail the expenditure of $150,000 this summer, Earle D. Bellamy, treasurer, has announced. The project will not be entirely complete until next year. The Pleasantville office has already been rebuilt as the first step in the program and preparations are going ahead to recable the whole town. A new exchange will be built at Lovilia, and all lines are being replaced and rebuilt. Within a month, construction of a new exchange at Melcher will be started and that telephone system rebuilt and rehabilitated. The Knoxville system improvements are the largest of the budget, entailing expenditure of $10,-000 upon new equipment for the central office. Other work will include the substitution of cable lines for many of the present overhead circuits and the entire wiring system, both urban and rural, will be rebuilt.

The Bellamy lines in Marion country are one of the largest Independent circuits in the state, the exchange operating toll lines to Pella, Harvey, Tracy, Bussey, Attica, Columbia, Beech and Swan in addition to the four local exchanges under its control.

STACYVILLE, IOWA.—C. E. Rex, who acquired the Stacyville exchange a few months ago, has completed laying 5,000 feet of underground cable and installing a new switchboard in the new quarters. He plans to begin rebuilding of the country lines this summer, giving Stacyville a practically new telephone exchange. Upon completion of this work Stacyville will be given 24-hour service instead of the day service and part-time Sunday service now given.

PAINTSVILLE, KY.—The Southern Bell Telephone & Telegraph Co. will install modern system here, it is stated.

BOSTON, MASS.—At its regular monthly meeting the executive committee of the New England Telephone & Telegraph Co. approved the expenditure of $2,778,166 for new construction and improvements in plant necessary to meet the demand for service. Including this authorization, the total commitment of the company for plant expenditures this year is $23,317,002.

Of the latest amount authorized, $547,-619 will be expended for exchange lines, $522,234 for toll lines, $397,420 for central office equipment.

In addition, $1,059,877 was appropriated to cover the total cost of hundreds of routine additions to plant in all parts of the company's territory during May.

TECUMSEH, MICH.—O. B. Conner, manager of the Tecumseh office of the Michigan Associated Telephone Co., announced recently that the company has authorized extensive improvements to the local plant, which will entail an expenditure of $40,000.

The switchboard now in use will be replaced by an automatic switchboard having 1,000 lines and providing accommodations for 1,200 patrons.

WEBBERVILLE, MICH.—The People's Mutual Telephone Co. is engaged in making considerable improvements in the telephone system. At a recent meeting of the directors it was decided to install a complete metallic system. This work is now under way under the direction of the manager, George Leonard. Over 100 miles of wires are replacing the old and a carload of new poles has already been placed.

COLUMBIA, MO.—The new telephone building of the Columbia Telephone Co. under construction is now 75 per cent completed, E. F. Carter, manager, estimated recently. The concrete floors, roof and piers have been poured, and the brick and tile walls have reached the second story of the building. The basement of the structure has been completed and the furnace has been installed.

Mr. Carter said that to date about 2,000 dial telephones had been installed in Columbia homes, business houses and offices. About 2,000 more will be put in before June 15. The dial system will probably not be used here before early fall.

EDGAR, NEB.—The Lincoln Telephone & Telegraph Co. is rebuilding the rural lines here under the supervision of J. L. Baxter, manager, with Foreman M. F. Marshall in charge of the work. There are 21 rural lines out of Edgar to be rebuilt, a total of more than 87 miles of toll line. There are 215 rural telephone stations, many of which will be replaced.

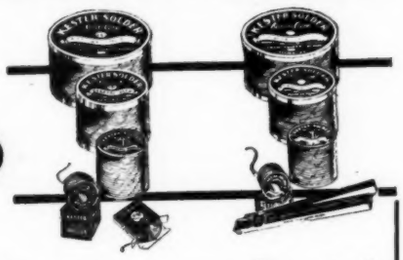
ASHEVILLE, N. C.—The Hazel-Craggy Telephone Exchange, serving 300 subscribers in Buncombe county, northwest of Asheville, has been opened for business. The exchange has just been completed at a cost exceeding $10,000. The Appalachian Telephone & Telegraph Co. is owner and operator.

The equipment of the new exchange is said to be absolutely modern. Six circuits connect it with the Asheville exchange.

R. M. Mead is president of the Appalachian company; C. W. Valentine is division manager. The company operates 60 telephone exchanges in North Carolina.

BEGGS, OKLA.—The Beggs Telephone Co. is rebuilding its outside plant, according to Sam Hand, owner and manager, who states that he intends to rebuild the inside plant also. New switchboards and

Stop



High Maintenance Costs!

When high cost of operation threatens—use Kester Flux-core Solders. Protect yourself against increased resistances due to corrosion and leakage. Kester Solders are recognized as standard for telephone work—Acid-core for outside jobs—Rosin-core for delicate inside work. Spools of right sizes and weights for every need.

Kester Solders have the Flux right in the core of the solder itself—simplifies soldering; saves both time and money.

Let our research and experimental department help you select the right solder for your particular maintenance and construction needs. Write us. No obligation.

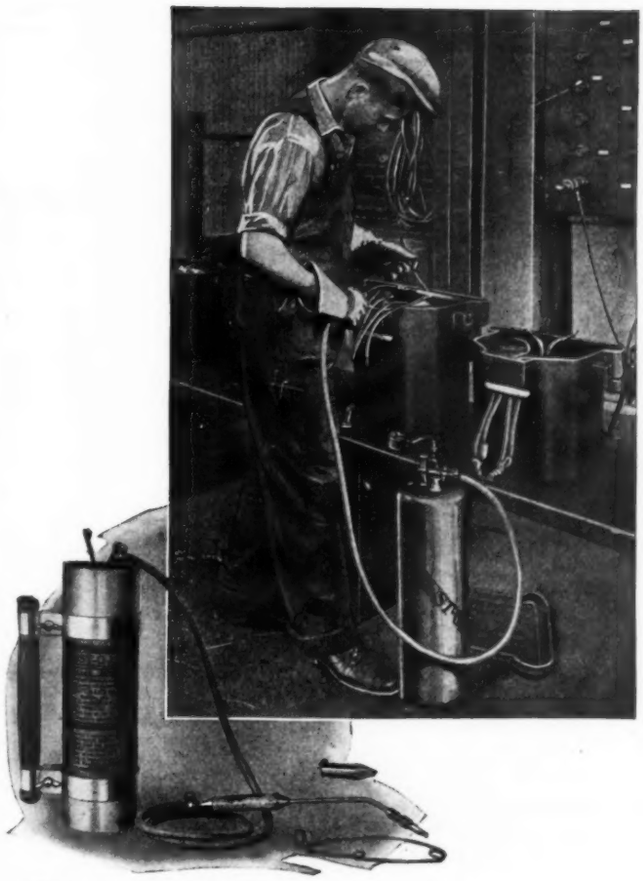
Established 1899

KESTER SOLDER COMPANY

Formerly Chicago Solder Company

4211 Wrightwood Ave. CHICAGO, ILL., U. S. A.

KESTER SOLDER
FLUX-CORE



Prest-O-Lite Process is *extremely* simple

NO delicate, complicated, or moving parts to require expensive repairs or replacement . . . No adjustments . . . Lasts indefinitely with ordinary care.

Utility Companies everywhere find that Prest-O-Lite blow-torches—using Prest-O-Lite Gas—are handier than any other equipment for soldering, sweating, splicing, wiping, brazing and similar heating jobs. Prest-O-Lite Process speeds up the work and saves money.

Phone the Prest-O-Lite Gas Distributor about this equipment or write us direct for complete information.

Prest-O-Lite Gas is available everywhere. Any one of 15,000 Prest-O-Lite Exchange Stations can supply you quickly with a full tank.

THE PREST-O-LITE CO., Inc.

Unit of Union Carbide and Carbon Corporation

NEW YORK UCC CHICAGO
Carbide and Carbon Bldg. Carbide and Carbon Bldg.

SAN FRANCISCO
Adam Grant Bldg.

In CANADA: Prest-O-Lite Co. of Canada, Ltd., Toronto

Prest-O-Lite GAS

MEETS EVERY TEST —*and It's Waterproof*

PUT a Diamond Telephone Cell to any test—in the laboratory or in service. You will find it unfailing under the most exacting requirements.

But simply meeting competition is not the Diamond way. The Diamond Telephone Cell has plus features. It's waterproof, hermetically sealed, and it has that patented air space that means many added hours of life. It is for these reasons that Diamond's are endorsed by the leading independent telephone companies.

DIAMOND
HI-PO TELEPHONE CELLS

Made by the makers of the Famous Diamond "B", "Hot Shot" Batteries and Flash Light Cells. Write for test samples and quotations.

DIAMOND ELECTRIC CORPORATION
Newark, N. J. Chicago, Ill.

other new equipment will be installed. The improvement program will cost more than $22,500.

CLINTONVILLE, WIS.—The Marion & Northern Telephone Co. is preparing to construct a modern telephone building here to house a new system to be installed. The present system is magneto, which will be replaced by more modern equipment. The company has several thousand feet of cable on the ground and as soon as a site can be decided upon construction will be begun.

Miscellaneous.

LITTLE ROCK, ARK.—J. L. Murphy, who for the past 18 years has been district traffic manager of the Southwestern Bell Telephone Co. for this territory, has resigned after nearly 25 years' service with that company. His resignation is to take effect June 15.

DANVILLE, ILL.—Louis L. Thomas of Moline has been named manager of the Danville exchange of the Illinois Bell Telephone Co., according to an announcement made recently.

BLOUTSVILLE, IND.—Bloutsville, without telephone service since May 1, finds its difficulties fading away. A local exchange, home owned and home operated, will be established shortly. The Citizens Telephone Co. of Cambridge, a Goodrich owned utility, has agreed to offer no objections to the establishment of a mutual exchange in Bloutsville, according to Paul Brown, a Newcastle, Ind., attorney, who represents the Bloutsville community. A petition for the right to operate an exchange in Bloutsville, together with the consent of the Cambridge City company, will be presented to the Indiana Public Service Commission shortly.

FORT WAYNE, IND.—With the acquisition on June 1 of the telephone exchange at Monroeville, Ind., the Home Telephone & Telegraph Co. will be operating a total wire distance of 100,000 miles. Announcement of the purchase of the exchange was made by Frank E. Bohn, president and general manager of the Fort Wayne company. The new property has 600 stations, which will bring the total number of stations served by the Home company to 36,000. Extensive rehabilitation will begin at once to bring the exchange up to efficient service.

BELLE PLAINE, IOWA—Charles Holsclaw, who succeeded W. A. Mosby as manager of the Central Iowa Telephone Co. here some time ago, has tendered his resignation to the company and will locate at Aledo, Ill., where he will assume the management of the telephone company and four other telephone exchanges in nearby towns.

RICHLAND, IOWA—T. H. Griffith, for the past few years manager of the Richland division of the Iowa-Illinois Telephone Co., has resigned that position. He has been succeeded by John Widner.

BLOOMING PRAIRIE, MINN.—The Inter-County Telephone Co., which maintains headquarters with exchanges in Hayfield, Ellendale and Blooming Prairie, has purchased lines of the Hollandale Telephone Co. in Mower and Freeborn counties.

ST. CLOUD, MINN.—Ralph S. Hanson,

Valuation—Supervision—Plant—Inductive Interference
Expert Administrative Counsel for Utilities
JAY G. MITCHELL
TELEPHONE ENGINEER
Member A. I. E. E.
Member W. S. E.
1509 South Park Ave. Springfield, Ill.

Frank F. Fowle & Co.
Electrical and Mechanical
ENGINEERS
Monadnock Building CHICAGO

KEARNEY
Certified Malleable
Screw Type
Anchors
14 Sizes
Main Office ST. LOUIS, MO.

CONSULTING
Telephone Engineer
GARRISON BABCOCK
1107 White Building
SEATTLE - WASHINGTON

J. K. JOHNSTON
TELEPHONE
JJK
ENGINEER
INDIANAPOLIS
During recent years I have been privileged to appraise Telephone Exchanges all over the United States. The list totals 663. Would you like to avail yourself of my services?
903-4 Lemcke Building

CONSULTING TELEPHONE ENGINEERS
W. C. POLK J. W. WOPAT
Plans, Estimates and Reports,
Appraisal and Supervision
Can arrange a moderate amount of financing
406 West 34th St. Kansas City, Mo.

W. H. CRUMB
Telephone Engineer
9 South Clinton St. Chicago

J. G. WRAY & CO.
Telephone Engineers
Specialists in Appraisals, Rate Surveys, Financial Investigations, Organization, and Operation of Telephone Companies
J. G. Wray, Fellow A. I. E. E.
Cyrus G. Hill
2130 Bankers Bldg., Chicago

PEARL
Life-time
Drop-Wire
BRACKETS
Save time, eliminate trouble. Hot galvanized screw-hooks and malleable castings are separable and indestructible. Standard 2-groove porcelain. Stocked by Telephone Manufacturers.
WM. H. PEARL CO. Indianapolis, Ind.

ACCOUNTING!
Specialization on Public Utility Accounting Records and Audits enables us to best serve Telephone Companies.
HERDRICH AND BOGGS
Certified Public Accountants
1014 Merchants Bank Bldg., Indianapolis, Ind

Universal Insulators
will support your drop wires to your entire satisfaction and at a minimum cost. Are you a user? Samples free on request.
Universal Specialty Co.
711 Poplar Street
Terre Haute, Ind.

GUSTAV HIRSCH
Consulting Engineer
In all branches of Telephone Engineering, Rate Cases, Appraisals, Financial Investigations, Inspections and Reports
COLUMBUS - OHIO

THE BOWDLE SYSTEM
Always shows you where you stand. We have solved the bookkeeping problem of a large number of companies.
Write us about our monthly audit.
Bowdle Accounting Systems
Cerro Gordo, Illinois

KEARNEY
Solderless
Service
Connectors
For Telephone Service Taps
Main Office - - ST. LOUIS, MO.

Creosoted
CEDAR POLES
Prompt Shipment via Rail or Water
CASCADE TIMBER CO.
822 Tacoma Building Tacoma, Wash.

NAUGLE POLES
Northern and Western Cedar
Butt-treated or Plain
NAUGLE POLE & TIE CO.
59 East Madison St., Chicago

Northern Western
CEDAR POLES
A full assortment of sizes
Prompt Shipments Assured
T. M. Partridge Lumber Co.
Lumber Exchange MINNEAPOLIS

Creosoted Wood Conduit
Railroad Ties, Bridge Timbers, Piles, Poles, Paving Blocks and Lumber—Manufacturers of Cross Arms, Signal Trunking and Wyckoff Conduit for Underground Wires.
The Wyckoff Pipe & Creosoting Company
Established 1881
OFFICE: 522 5th Ave., N. Y. WORKS: Portsmouth, Va.

The advertiser appreciates your mentioning TELEPHONY.

formerly manager of the Hibbing exchange of the Northwestern Bell Telephone Co., has been named manager for the company here. The announcement was made by L. H. Dahl, district manager. Mr. Hanson will succeed I. M. Sorlie.

MOUNTAIN GROVE, MO.—The Central West Missouri Telephone Co. has established a division office here to direct the plants here and at Willow Springs, Mountain View, Norwood, Seymour and Fordland. J. C. White, who the last 15 years has been with the Bell company, has been appointed division manager.

ST. LOUIS, MO.—Percy Redmund, general manager of the Southwestern Bell Telephone Co. for eastern Missouri and Arkansas since 1921, has been transferred to the staff of the vice-president, it was announced recently by Fred M. Hoag, vice-president of the company.

Shields R. Smith, division superintendent at St. Louis for the last three years, has been appointed general manager for the eastern Missouri and Arkansas area to succeed Mr. Redmund.

Mr. Smith is a native of Missouri and has been in the telephone business for many years. Before coming to St. Louis he had been stationed first at Sedalia and later at Kansas City.

BELLEFONTAINE, OHIO—The holders of the common stock of the United Telephone Co. have been paid their prorated shares of the $100,000 held as an option by Fred C. Spittle, cashier of the Bellefontaine National Bank, who is trustee for the Sweezy corporation of Alliance, purchaser of the 10,000 shares of the common stock of the United Telephone Co., Bellefontaine. The Sweezy corporation authorized the distribution of the $100,000 which was put up to bind the purchase of the United company in January.

A supplemental contract has been entered into also that another $100,000 is to be placed with the Bellefontaine National Bank prior to July 1 which is also to be distributed on the pro rate plan, $10 a share, to the common stockholders, and the contract between the purchasing company and the United Telephone Co. is to be continued until November 1. In the event the balance of $1,750,000, the purchase price at $175 a share, is not paid to the holders of the common stock of the United Telephone Co. on or before November 1, the several payments made will be deemed as liquidated damages and the stock is to be returned to the owners with no refund of money whatsoever.

HOMINY, OKLA.—Mrs. Edna Dilbeck, who has been head bookkeeper in the general offices of the Oklahoma Telephone Co. here for the past two years, has resigned and will return to her former home in Shawnee where she will be employed in the traffic department of the Southwestern Bell Telephone Co.

Mrs. Dilbeck is succeeded by Mrs. Sylvia Clark of Barnsdall who has been manager and chief operator of the telephone company's exchange there for the past year. Mrs. Clark has had several years of experience in the telephone business and is well qualified for her new position.

Myrtle Thompson, bill clerk in the telephone company's general offices, has been transferred to Barnsdall to succeed Mrs. Clark as manager and chief operator. Miss Thompson has been in the employ of the telephone company for over three years and her promotion is the result of conscientious and efficient service.

OKLAHOMA CITY, OKLA.—A net gain of 12,751 telephone stations in Oklahoma for the year 1928 is reported by the Southwestern Bell Telephone Co. Tulsa shows the greatest gain with 4,150 stations, while Oklahoma City's gain was 3,957. Oklahoma City had 39,072 stations on January 1, 1929, compared with Tulsa's 37,342 stations. Enid showed the third greatest gain in the number of stations, Shawnee stood fourth and Ada, fifth.

TYRONE, OKLA.—Guy Smelser, formerly the owner of the telephone exchange at Bokchito, Okla., has bought the exchange here.

PLEASANT SHADE, TENN.—After having been cut off from connection with Martsville, the county seat, the people of the Dixon Creek section are finishing telephone connection between their exchange, known as Dixon Creek, and Hartsville. The lines were destroyed by the high rise of two years ago and the financial condition of the company hindered the reconstruction of the connection.

SILVER HILL, W. VA.—The Silver Hill Telephone Co. has filed articles of voluntary dissolution.

STRATFORD, WIS.—William Colling of Edgar took over the management of the Stratford telephone exchange on May 1. The exchange is owned by the Commonwealth Telephone Co. of Wisconsin. Formerly Mr. Colling was a lineman for the Commonwealth company at Edgar. He is assisted at the exchange by Mrs. Colling, his wife, and by Mrs. Fred Lillge. Mrs. Lillge operated the switchboard at the Stratford exchange for four or five years 12 years ago. Mr. Colling took over the exchange from John Burkhart.

THREE LAKES, WIS.—Sale of the Three Lakes Telephone Co. at Three Lakes, Oneida county, to the Commonwealth Telephone Co. has been reported. The Commonwealth company owns several telephone systems in this part of Wisconsin.

AYER & LORD TIE CO.

INCORPORATED 1893

CHICAGO

Railroad	*Bridge Timbers*
Cross Ties	*Car Stocks*
Lumber	*Piling & Posts*
Poles	*Mine Timbers*

TREATING PLANTS

Carbondale, Ill. Grenada, Miss.
No. Little Rock, Ark.
Louisville, Ky. Montgomery, Ala.

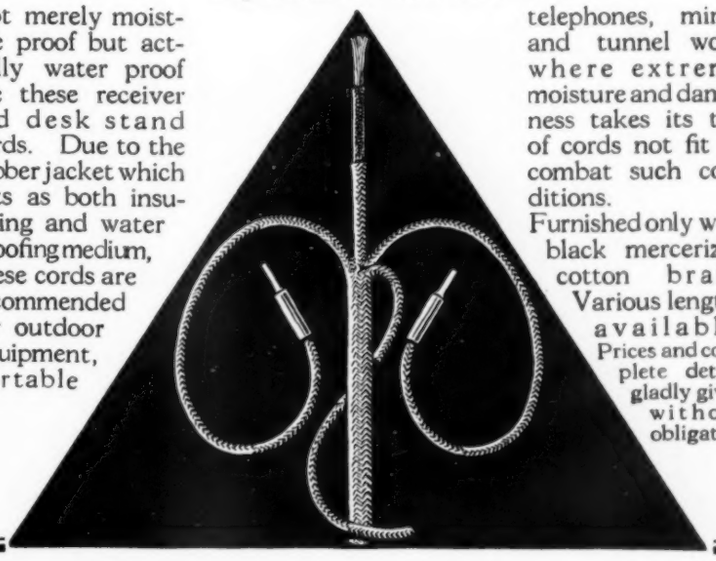
"Creosote Oil Prevents Decay"

WATER PROOF CORD

Receiver . . . . . Desk Stand

RUNZEL-LENZ
Electric Mfg. Company
1751 N. WESTERN AVE.
CHICAGO, ILL.
Dependable since 1904

Not merely moisture proof but actually water proof are these receiver and desk stand cords. Due to the rubber jacket which acts as both insulating and water proofing medium, these cords are recommended for outdoor equipment, portable telephones, mines and tunnel work where extreme moisture and dampness takes its toll of cords not fit to combat such conditions.



Furnished only with black mercerized cotton braid. Various lengths available. Prices and complete details gladly given without obligation

The advertiser appreciates your mentioning TELEPHONY.

OPPORTUNITIES!

Rates 10 cents per word, payable in advance. Minimum charge $2.00 for 20 words or less.

"REBUILT" TELEPHONE APPARATUS

and exchange equipment saves you 30 to 50 per cent—quality and efficiency guaranteed.

EVERYTHING YOU NEED

for the installation and operation of a complete exchange—Magneto or Central Energy.

TWENTY YEARS' SUCCESSFUL OPERATION

of our "Rebuilt" Equipment Department puts it past the experimental stage. Ask for our Free No. 78 Bargain Bulletin.

ADDRESS

"Rebuilt" Equipment Department

Premier Electric Company

Chicago, Ill.

"REBUILT" when connected with PREMIER means something.

RECONSTRUCTED EQUIPMENT

Stromberg 3-bar Bdg. Gen., complete @ $1.65—4-bar $2.50—5-bar @	2.75
Kellogg 100 ohm drop coils @ 35c—500 ohm @	.45
Stromberg No. 992 type 3-bar 1000 or 1600 ohm Bdg. desk set @ $9.50—4-bar $10.25—5-bar	11.00
Am. Elec. No. 36 4-bar 1000-1600 or 2500 ohm Bdg. compacts with Kellogg transmitters @	6.50
Kellogg No. 742 Common battery Steel hotel sets with straight line or 16-33-50 or 60 cycle harmonic ringers @	6.75
Chicago Tel. Supply 5-bar 1600 ohm Bdg. compacts with Chicago or Kellogg Transmitters @	8.25
Stromberg No. 104 type 5-bar 1600 ohm Bdg. compacts @	9.50
Kellogg No. 28 desk set with 3-bar 1000 or 1600 ohm inside connection Rebuilt signal set @ $10.00—4-bar $10.75—5-bar @	11.50
Kellogg No. 15 3-bar Bdg. hand Generators @ $1.75—Western Elec. @.....	1.60

Write for Our Bulletin

REBUILT ELECTRIC EQUIPMENT CO.
Not Inc.
1940 W. 21st St., Chicago

POSITION WANTED

POSITION WANTED—Accountant, age 35, twelve years' experience in all phases of telephone accounting, with Bell and Independent companies. Can take full charge of accounting, prepare annual reports, tax returns, etc. Prefer connection with Holding Company. Address 7500, care of TELEPHONY.

HAVE YOU ANY OLD TELEPHONE EQUIPMENT TO BUY OR SELL?

Then try the "Opportunities" page in TELEPHONY for it will give you quick and pleasing results, as the following letter from the Manteca Telephone Co., Manteca, Calif., testifies:

"Enclosed please find check in payment of invoice for classified advertisement. Had fine results from the advertisement as is usual in good old TELEPHONY."

We receive many similar letters every day.

WHY DON'T YOU GIVE IT A TRIAL?

IF YOU ARE IN NEED OF THE FOLLOWING

Kellogg Desk Stands—Magneto or local battery, with or without induction coils or retard coils.

Kellogg Steel Hotel Sets either retard or induction coils, straight line or harmonic ringers.

Kellogg No. 259 Steel Signal Boxes, with or without induction coils, straight line or harmonic ringers.

Kellogg No. 75 Steel Signal Boxes, straight line ringers.

Kellogg No. 404 Steel Signal Boxes, straight line ringers.

Kellogg No. 408 Wood Signal Boxes, straight line or harmonic ringers.

We Have Them. Write for prices.

Electrical Instrument Repair Co.
1721 West Adams St. Chicago, Ill.

CHARGING and RINGING EQUIPMENT

Western Electric Co. type, 32 H. P. 220 V. direct current motor direct connected to 400 ampere generator (f. o. b. Columbus, O.).....$500.00

Westinghouse 30 and 50 ampere type A. T. rectifiers.

Large interrupters for howler, busy back, don't answer, code ringing, etc.

Buckeye Telephone & Supply Co.
1432 So. Parsons Ave.
COLUMBUS, OHIO

FOR SALE

TWO CONDUCTOR new black silk desk stand cords, 25c; W. E. No. 47A fuses, $6.00 per 100; W. E. No. 14 terminal, 16 pair less stubs @ $3.00; No. 17 parallel bronze drop wire, $6.50 per 1000 feet; Stromberg-Carlson P. B. X. jacks, keys and relays, very cheap. Prices on request.

The TELEPHONE REPAIR SHOP
6966 Ravenswood Ave., Chicago.

Slightly Used Drop Wire $25.00 per ton
And Used Cablemen's Tool Carts, $10.00 Each. Also 25,000 ft. of New No. 17 Gauge Parallel Drop Wire in lengths from 400 to 1000 ft., at $5.75 per 1000 ft.

WM. M. MILLER & SONS
2553 Madison St. Chicago, Ill.

FOR SALE—100 Leich 4-bar 1600 ohm compact telephones; also 50 automaphones, refinished, $6.00 each. Corwin Electric Co., Indianapolis, Ind.

FOR SALE—Telephone exchange in the heart of San Joaquin Valley, California. Best buy at forty thousand dollars. Address Exchange, 4071 McLaughlin Ave., Culver City, Calif.

HELP WANTED

WANTED—Lineman and wife to run small plant and operate same. Address 7496, care of TELEPHONY.

WANTED—An oldish man to repair and revarnish rusty and worn telephones so they can't be told from new. Our shop is completely equipped with the needed hand and electric tools. We offer home life with every advantage and accommodation. Address 7499, care of TELEPHONY.

WANTED—Common battery switchboard man who can and is willing to do any work until permanently placed. Address 7495, care of TELEPHONY.

WANTED—Practical cable and construction man wanted for about two years' work in Colombia, South America. Should be capable of planning and building outside cable and wiring system for small towns. State qualifications and experience. Address Box 7492, care of TELEPHONY.

WANTED—Lineman. Address 7497, care of TELEPHONY.

TO OBTAIN the *Right Man* for your requirements, an "Opportunity's" advertisement will place him in touch with you.